FEEDSTUFFS

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Veterinary-Nutrition Meeting In Kansas City Set

KANSAS CITY—Animal nutrition and health, from both scientific and practical standpoints, cannot be separated. And the two subjects will come in for discussion at a single conference coming up in Kansas City.

The event is the Midwest Veterinary-Nutrition Conference, to be held Dec. 8-9 at the President Hotel. In addition to nutrition and health problems, the conference will deal with relationships between feed men and veterinarians.

Program plans for the two-day meeting were announced this week by Lloyd Larson, executive vice president of the Midwest Feed Manufacturers Assn., sponsor of the conference.

Industry and college scientists will discuss various aspects of animal and poultry nutrition and health, and both feed men and veterinarians will focus attention on the need for closer working relationships between the two groups in the field.

The program includes sessions on swine, poultry, ruminant and small animal nutrition and health and on cooperation between the feed industry and veterinarians. Following each session will be a question and answer period.

Tuition for the two-day meeting is $10. The tuition will entitle registrants to a complete transcript of the entire proceedings. Mr. Larson advised early registration for the meeting and indicated that further information and registration forms are available at the office of the Midwest Feed Manufacturers Assn., 20 W. 9th St. Building, Kansas City.

A highlight of the meeting will be an address by Dr. Russell E. Rebras-

(Turn to CONFERENCE, page 8)

Soybean Meal Pellets Move on Great Lakes Vessels for First Time

BUFFALO—The first shipload of pelleted soybean meal ever to be carried on the Great Lakes is scheduled to arrive in Buffalo Nov. 24. The pioneer shipment will amount to 1,700 tons, the equivalent of about 60,000 bu. of grain. It will occupy one entire hold of the Smith Thompson, vessel of the T. J. McCarthy fleet.

Feed and grain executives here said the shipment "may well mark the beginning of a major new business for ship operators," and it should go far in offsetting export grain losses likely to be sustained by Buffalo with the opening of the St. Lawrence Seaway.

Representing more than a year of negotiation and effort by the Cooperative G.L.F. Exchange, Inc., Boland & Cornelius, vessel operator and

(Turn to SOYBEAN MEAL, page 93)

New Firm Organized to Produce Started Pullets

BERNE, IND.—A new corporation has been formed for the production of started pullets, it has been announced by Gordon M. Liechty and Weldon J. Lehman, Berne Hi-Way Hatchery. The firm will be known as Hi-Way Farms.

In addition to Mr. Liechty and Mr. Lehman, shareholders and incorporators of the new firm are Edward Sprunger, Clifton Gerber and Leonard Kingeley, all of Berne.

The corporation has purchased a farm three miles southeast of Berne. New facilities are being built at the site to house approximately 60,000 pullets of ages 12, 16 and 20 weeks. All pullets are of the Honegger strain. The Berne Hi-Way Hatchery will serve as sales agent for the pullets.

Huge Surplus of Grain Now Indicated for '59

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Projections of grain supply conditions facing the nation at the close of the crop year in 1959 indicate a condition which can only be defined as a crisis or the onset of a catastrophe facing all elements of the grain and grain processing trades and the essential marketing agencies involved.

U.S. Department of Agriculture specialists have taken off a trial balance of the total feed and cereal grain and oilseed carryover as of Oct. 1, 1959, from old crop supplies. It adds up to a total old crop carryover of more than 4 billion bushels, of which some 1 billion will be wheat.

Furthermore, it appears that nothing can be done legislatively between now and next fall which can prevent these conditions.

And, adding to the frightening outlook, is a further forecast from producer sources that the new corn program will cause 1959 production of corn amounting to as much as 4.5 billion bushels, weather permitting. It is assumed that in the referendum Nov. 25, farmers will approve the new corn support plan. This will increase the level of support for about 85% of the crop by 9 to 13¢ bu. over levels which prevailed in 1958.

Few persons, it is believed, are really aware of the mounting supply situation and the relatively inconsequential effects of all the export and other give-away deals which Congress and administrators have been able to devise.

USDA projections on old crop grain

(Turn to SURPLUS, page 89)

Iowa Farm Bureau Plans Operations In Feed Business

DES MOINES—The Iowa Farm Bureau Federation expects to be operating in the feed business in several Iowa counties by Jan. 1, it was announced by Don Groves, treasurer of the state federation, at the Farm Bureau convention here Nov. 18.

"Credit is an integral part of the feed business, and we will make it available," he said. "Our present capital structure is broad enough to take care of it."

John Gillespie, Chicago, has been named by the Farm Bureau as nutritionist to direct the formulation of feeds to be offered by the federation. The Iowa Farm Supply Co., an affiliate of the Farm Bureau, will purchase feed from established companies, according to Mr. Groves, but the formulas will be worked out by Mr. Gillespie.

Besides entering the livestock feed business, the Farm Bureau will also enter the grass and legume seed business with Tom Sveen, Decatur, Ill., in charge. Seed will be purchased from other companies at the start, but some processing is planned later, according to Mr. Groves.

"Farmers, as individuals, must neutralize outside integration by integrating themselves with their own organizations," Dr. Merrill Evans, director of the Iowa federation's marketing research, told persons attending the livestock conference at the convention. He said the bargaining

(Turn to IOWA, page 93)

Quaker Oats Will Halt West Coast Feed Operations

LOS ANGELES—The Quaker Oats Co., Chicago, will discontinue its livestock and poultry feed operations on the West Coast on or before Dec. 31, and will expand its cereal processing at the Los Angeles mill.

The announcement came from Paul H. Bimmerman, manager of Quaker Oats' western division. He attributed the company's decision to drop its West Coast feed operation to a long-range study of agricultural trends and feed marketing potentials. He said cereal processing at the firm's Los Angeles mill will be stepped up by way of extensive remodeling and installation of new production equipment.

I. S. Riggs, vice president in charge of feed sales, said that for the present the company intends to concentrate expansion of its feed business east of the Rockies mainly because of "shifting markets, costly feed handling and delivery problems and location of the Los Angeles feed mill in a congested area."

He explained that for some time the company has been carrying on a thorough study of the national distribution of livestock and poultry feeds. "It has become evident that the successful feed business today requires manufacturing facilities located in areas of concentrated livestock and poultry production. These facilities must also be located in uncongested, non-metropolitan areas,

(Turn to QUAKER OATS, page 93)

1959 Price Prospects: Firm On Cattle and Low on Hogs

WASHINGTON — For more than two years, cattle and hog prices have trended upward together. In 1959 they will take separate courses. Prices of cattle will likely hold up well, but prices of hogs will decline considerably. In fact, hog prices next fall could possibly approach the low of less than $11 cwt. in 1955, although that is not now certain.

That's how the U.S. Department of Agriculture sees the livestock price situation in 1959 as production of both cattle and hogs continues to increase.

Here's what USDA has to say in its annual outlook report on the cattle, swine and sheep situations:

CATTLE: Production of cattle is now on an uptrend. The inventory of all cattle on farms on Jan. 1 will be at least 2 to 3 million head above January, 1958. Much of the increase will be in calves. Not all of the additional calves will be slaughtered during 1959, as more than usual will be retained for breeding or later feeding. Since cow slaughter will re-

(Turn to LIVESTOCK, page 93)

FEEDSTUFFS *Features This Week*

CATTLE FEEDING: A Golden Year article on beef cattle feeding by Dr. W. M. Beeson will be found on **page 30.**

BULK FEED: Summaries of bulk feed handling discussions and demonstrations at the Feed Production School appear on **page 10.**

BROILER TRIAL: Results of the latest Maryland broiler feeding trial are reported on **page 18.**

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Taking Measure

THERE HAS BEEN NO SHORTAGE of news and comment about the huge supplies of feed grains on hand for the current feeding year, but until some projections of the figures were examined this week, the possible impact of surpluses probably has not been evaluated too closely by those most likely to be affected.

"Few persons are believed to be aware of the aspects of supply conditions which are mounting and the relatively inconsequential effects of all the export and other give-away deals which Congress and administrative zeal have been able to devise," writes John Cipperly, Feedstuffs' Washington correspondent, this week.

Supply projections for all grains and oilseeds indicate a carryover next October of more than four billion bushels, about one billion of which would be wheat. This, in total, would be about equivalent to 75% of the production of these crops in the 1953 crop year.

A current U.S. Department of Agriculture outlook comment notes that total feed concentrate supplies have increased sharply during the past two years following the more moderate increases during the 1952-56 period. This is the sixth year of increasing feed concentrate supplies and the fifth year of record supplies.

Prospects for next year's crops, of course, weigh heavily in making predictions of the carryover next October. Some sources are predicting a corn crop next year of as much as 4.5 billion bushels.

THE COMBINATION OF AN UNREALISTIC farm program and application of better growing methods has produced these bountiful crops, and the day of reckoning with the problems created by price support programs cannot be forever postponed. A very real danger involved in this huge accumulation of grain supplies is that some drastic moves may be made by Congress to backtrack on the progress that has been made in the past year toward freeing the grain trade.

Such inherent dangers are of concern to feed men, but of more immediate interest is what the unprecedented supplies are likely to do to livestock and poultry production. Over the past years, feeding margins have been good and feed tonnage has responded accordingly. Sharp increases in production of some livestock and poultry, particularly hogs and broilers, are now anticipated, during 1959. At this point it is difficult to predict whether or not over-all feeding operations will be as profitable as during the current year. However, with proper attention to efficient feeding methods and restraint as the year progresses, production and price problems can be met. Lower feed prices, as a result of the large supplies, are widely anticipated, and if nothing is undertaken in Washington to violently upset price balances, margins can remain satisfactory. Meanwhile, the more disturbing implications of the continued gain in supplies of grain more than likely will require careful study and planning for late 1959 and the following year.

Present or Accounted For

THE APPEARANCE LAST WEEK of new department headings in this publication brought forth a terse comment from one of the department authors, Spence Morrison, who provides the research reviews (page 60), observes:

"I like the new heading, but I am somewhat perturbed that it is very unscientific. If you check the column heading, you will note that Lot A only has 2 pigs in it, while Lot B has 3. This is biased research, if I ever saw it!"

Others are bound to notice this, too, so an explanation is due. It does not, as someone suggested, illustrate a poker hand in the sometimes gambling swine game (full house). Actually, it's quite apparent—one of the pigs is temporarily out of the pen being weighed in a most scientific manner. He'll be back.

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

The return of colder weather to parts of the nation and the prospect of a shorter week ahead gave feed business a little push this week. It was generally good over the country as livestock producers continued to feed well. Offerings of some ingredients, notably millfeeds, were rather scarce, however, and the price of feeds will be up during the coming week. Dairy and cattle feeds led the demand, along with poultry feeds. The feed grain index moved up 2.2 points to 64.0. This was 2.9 points under a year earlier. The index of feedstuff prices advanced 2.5 points to 88.1, compared with 72.0 a year earlier. (Ingredient prices in detail on pages 90-92.)

Northwest

An upturn in feed business was reported by feed mill representatives this week, but they weren't sure whether it was the result of a short week upcoming or better general demand. The general feeling, however, was that business "was starting to turn upward."

Return of winter for a brief period during the week was thought to have brought a response from dealers and feeders.

Turkey business is just about over, but dairy, cattle and poultry feeds were all reported to be on the upswing, and the hog business continues to be good.

Representatives said there has been no obvious resistance to recent price increases, and price lists are showing another increase for the coming week. Prices will be up $1 to $2.

Running time is increasing. Mills are adding men to shifts which had been reduced in recent weeks or are going into overtime.

Southwest

Formula feed sales in the Southwest have improved this week. Though not all mills have felt the improvement, there has been no appreciable slip-back for most plants and a number of other mills report fuller schedules and bigger backlogs. Running time ranges from five to six days, with the busier mills even having added overtime to shifts.

In some cases business has improved sharply because of special sales efforts and booking concessions. In these instances there is stocking up by dealers. The weather has also had at least some influence, particularly in improving cattle feed business. Snow and cold weather covered the western and northern portions of the region. As a result, more cattle have been put into feedlots, giving impetus to the feedlot ration movement. The full effects of winter weather are not expected to be felt in improved feed business until next week.

Swine feeds continue to be leading items. Despite some sagging prices, hog feeding ratios are still pretty good and the animal numbers are high. Turkeys are comparatively scarce now and this feed movement is down to a trickle of what it was. Laying rations are picking up some.

Higher levels are indicated for price cards next week. Most ingredients are up with the result that formula feed prices generally will be up 50¢ to $2.

Northeast

Fundamental conditions underlying the market reasserted themselves and sales of formula feed again tapered. In the previous week, demand had been stimulated by consumer buying against price increases.

Egg prices were off, broilers continued to scrape along the bottom and turkeys are disappearing into freezers, so little can be expected of poultry feeds now.

Dairy feeds, however, despite a lot of afterfeed on the farms, held up well. Bran demand has been strengthened by a good return on milk.

The recent big storm firmed up mid-western prices and they held above Eastern levels. The storm bypassed this region and headed into Canada.

Many ingredients continued to climb during the week.

Corn advanced 3½¢ as demand exceeded receipts and export activity continued. Oats and barley rose 1½ to 2¢. Feed wheat held unchanged.

Soybean oil meal (44%) gained $1.50 to $2 and 50% meal rose $1 to $1.50. Cottonseed oil meal, which has been lacking in individual action, moved a little in sympathy with soybean meal. Linseed oil meal continued quite strong, hard to find, and up $1.50 to $2.

Fish meal generally was firm on light offerings, but there was an instance of a crack in the price structure. Efforts to raise meat scrap prices failed and levels held unchanged.

Hominy picked up a little steam and rose 50¢ to $1. Brewers' grains gained 50¢ but they haven't responded too much to recent rising markets. Distillers' grains also added 50¢ and gluten feed advanced $2.

Millfeed prices continued to advance in a strong market, although some resistance to middling levels appeared.

Running time of formula feed manufacturers dipped to 36 hours from 40 hours in the previous week.

Southeast

Feed demand continues good. Feed mill running time has held steady to better than previous weeks due to the constant demand.

Baby chick placements are down slightly from the previous report and were a fraction of a percent more than the number placed during the same period last year in the north Georgia broiler producing area. Broiler prices have weakened and at present time stand at 14¢ to 15¢ lb. f.o.b. farms—mostly 15¢.

Dairy feeds continue to increase and are expected to continue at an increasing pace during the coming weeks. Cattle and hog feeds are also reported to be moving well, even though feed prices have been increased in most instances for most types of poultry and livestock mixed feeds.

Most feed mill inventories are reported to be on the low side, and since expectations were for lower feed and ingredient costs, practically all purchases for the present time are for nearby position, which has caused considerable firmness in spot shipment material. Protein markets in particular have advanced sharply and supplies are extremely tight on such items as cottonseed meal.

Roughage feeds have also advanced in price due to short supplies of

(Turn to MARKETS, page 95)

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Bullish Market For Dehydrated Alfalfa Meal Seen

KANSAS CITY—The report on dehydrated alfalfa meal production and stocks issued late this week by the USDA is given one market interpretation by observers here—bullish.

Two features stand out in the report: (1) Production for the important May through October period is 22,200 tons less than for the comparable period of 1957, and (2) stocks on hand at producing plants Oct. 31 were 40,000 tons less than on the same date a year earlier.

The reason for the much smaller stocks is explained by the fact that disappearance for this six-month period exceeds that of last year by 64,600 tons. Only in August was disappearance behind the corresponding month of a year earlier, and that lag was only 1,100 tons.

A further analysis of the figures on stocks, compared with disappearance during the November through April period, shows that a tight supply situation could occur before the new production year gets under way in the spring.

Disappearances in the November-April period last year totaled 434,100 tons, nearly 10,000 tons more than the 423,800 tons on hand. Average disappearance for that period over the past five years has been 403,960 tons. Some market analysts point out that last season much material was held during the producing season and then had to be moved during the winter, pushing disappearance abnormally high. Now, they say, since there has been more sold during the summer season this year, disappearance is not likely to be so high during the winter.

However, the major alfalfa producers point out that the improved demand has just followed improved feed business.

"Our sales have been running well ahead of a year ago each month,"

(Turn to ALFALFA, page 89)

Chick Production Up 12% in October

WASHINGTON—Production of chicks by commercial hatcheries in October was up 12% from a year earlier, the U.S. Department of Agriculture reports. Total output was about 149 million chicks, with broiler-type chicks accounting for 89% of the total.

Production of egg-type chicks in October—a seasonally low month—was 17.1 million, compared with 13 million a year ago.

Broiler chick output continued ahead of a year ago, with an October total of almost 132 million, compared with about 120 million in the same month last year. This represented a 10% increase.

Larger November hatches were in prospect, too. The number of broiler-type eggs in incubators on Nov. 1 was 14% higher than a year earlier, and the number of eggs for egg-type chick production was up 24%.

CASE OF THE MISSING PAGE NUMBERS

If any Feedstuffs reader notices that the page numbering in this issue jumps from 24 to 29 with no intervening pages at that point, he need not be concerned that part of his paper is missing. A change in the schedule of printed material after page numbering had been set and printing had begun resulted in the absence of four previously scheduled pages. Thus, four numbers are missing, and the page numbering goes from 24 to 29. However, the reader has the complete issue as it was printed.

Reserpine Cleared As Feed Additive By Canadian Agency

MONTREAL, CANADA—Ciba Co., Ltd., has announced that the Canadian Food and Drug Directorate has cleared Serpasil (the Ciba name for reserpine) for sale as a feed additive for stress amelioration. The new additive, however, is not yet commercially available.

A similar application is now awaiting clearance by the Food and Drug Administration in the U.S.

Announcement of the Canadian action was made by Roger Larose, manager of the pharmaceutical division of Ciba Co., Ltd., in Montreal.

Mr. Larose said the drug has been used successfully for five years as a tranquilizing and antihypertensive (blood pressure lowering) agent in humans. Serpasil has also been available to the veterinary profession in Canada and the U.S. for two years as an oral tranquilizer. Reserpine is a single pure crystalline alkaloid of rauwolfia root, first identified, purified and introduced by Ciba, the announcement said.

Ciba scientists began research with rauwolfia in 1947 and isolated the crystalline alkaloid reserpine in 1952. Laboratory and clinical studies of the drug as a stress-ameliorating agent in animals has been under way by the firm for more than three years. At the present time, extensive studies are also being conducted in the U.S. at several state and federal experiment stations.

The announcement said current investigations are concentrated in the poultry field, but data are being accumulated in other animal species including lambs, beef and swine. These include studies of efficiency of weight gains through either acceleration of growth or reduction of feed per unit of gain, egg production, improved egg quality, reduced feed waste, reduced cannibalism, reduced

(Turn to RESERPINE, page 89)

Delmarva Broilers Drop to 16.3c Average

SALISBURY, MD. — Broiler demand appears to be down from 1957. Delmarva growers last week received an average of 16.3¢ lb. on the farm. The week before the price was 16.9¢ and a year ago it was 18.1¢.

The lower prices came in spite of no increase in the number of birds going to market. According to the Maryland-Delaware Crop Reporting Service, growers in the two states sent about the same number of broilers to market as in the previous week and 2% less than the same week of 1957.

Nationwide, hatcheries began loading up their incubators for greater broiler production early in the new year. For 22 reporting states, the egg set was 39,469,000, 1% more than the previous week and 15% above the corresponding week a year ago.

The number of broilers eight to nine weeks from now will be 11% above last year. Broiler growers last week placed 27,171,000 broilers. This was also 1% above the previous week.

Seen as having some influence on the low prices received for broilers is the heavy stock of frozen poultry. The total stock on hand at the end of October was 407 million pounds compared to 306 million pounds for the October, 1953-57, average.

A. D. W. Johnson Dies

ANOKA, MINN.—A. D. W. Johnson, 72, the father of Maurice Johnson, vice president of the Staley Milling Co., Kansas City, died here Nov. 19. Surviving also are his widow; a daughter, Mrs. Donald (Lucille) Jelmeland, and another son, Robert W., all of Anoka. The funeral service was held Nov. 22 at the First Baptist Church, Anoka, with interment at Forest Hill Cemetery.

AT PRODUCTION SCHOOL—Committee members and others who helped with the 1958 Feed Production School in Kansas City were honored during the school. Also present were heads of two of the feed organizations providing men active in the school. On the right is the late Oscar Straube, president of Pay Way Feed Mills, Kansas City. The picture was taken just shortly before Mr. Straube's unexpected heart attack and death at his home after a school session the evening of Nov. 12. Others in the picture, left to right, are D. H. McVey, general manager of the General Mills feed division, Minneapolis; Calvin Hunzeker, The O. A. Cooper Co., Beatrice, Neb.; W. B. Briggs, Spartan Grain & Mill Co., Spartanburg, S.C.; J. D. Johnson, General Mills (school committee chairman). Larry Alley, vice president of Pay Way, a Midwest director and active participant in the school, was not present when the picture was taken. (A report on the bulk feed discussions at the school will be found on page 10.)

National Alfalfa Plans Gas Storage Facility At Blair, Neb.

KANSAS CITY—National Alfalfa Dehydrating & Milling Co. will build a new 18,000-ton gas storage facility on the Missouri River at Blair, Neb., it was announced this week by A. R. McFadden, vice president.

Complete facilities for processing dehydrated alfalfa pellets into a wide variety of National's products will be installed. The plant will be equipped for unloading pellets received by truck or rail from National plants in Nebraska and other western points. Loading out of trucks and cars in bulk, multiwalls and burlaps is also planned, along with loading into barges.

Two objectives will be met by this Missouri River location, Mr. McFadden said. First, barging pellets under inert gas into National's Memphis river location will transfer needed quality and tonnage for meeting the increased demands of the Memphis and southeastern market area. Secondly, since the new plant is located on U.S 30 highway, it places National's complete product and service facility in proximity to the important Iowa and Minnesota truck market.

The plant is also on the Chicago, Northwestern Railway for convenient north and east bound carload traffic. National's Lexington, Neb., gas storage plant also will serve the truck and carload market in similar fashion.

National plans to operate 20 dehydrators in Nebraska next producing season, Mr. McFadden said. This represents about 20% of the company's total production. National recently sold its less conveniently located Omaha gas storage and processing plant. It is planned to have the new plant open before new crop production commences.

"Growing demands for National Alfalfa's quality and service prompted this move," said Mr. McFadden. "Sales volume for the six months ending Oct. 31 is 35% greater than last year. We believe our attempt to learn the feed manufacturers' nutritional problems and our keying of our business to service has helped to attain this increased volume."

BUILDS NEW MILL

ANDERSON, S.C. — Smith's Mill here, one of the last water-powered mills in the South, is being replaced by a new facility by George Smith, owner. The original mill was built in 1825, and it was rebuilt after a flood in 1908.

Christmas Party Set for Northwest Feed Group

MINNEAPOLIS—The ninth annual Northwest Feed Manufacturers Assn. Christmas party has been set for the Calhoun Beach Hotel here, on Dec. 5, announced Jack Conlee, Osborne-McMillan Elevator Co., Minneapolis, committee chairman.

Festivities will start with cocktails at 6:30 p.m., and dinner will be served at 7:45 p.m. Entertainment and dancing will occupy the rest of the evening.

There will be a drawing for a $25 gift certificate. To be eligible for the drawing, reservations must be in by Dec. 4. Dick Blomfield of Blomfield-Swanson, Minneapolis, is handling the reservations.

"Farm Business Days" To Be Held in Kansas

MANHATTAN, KANSAS—The department of agricultural economics at Kansas State College here will sponsor a Farm Business Days program Dec. 1-2 to discuss such subjects as integration, contract farming, and the industrial use of wheat.

The program replaces the economics discussions formerly held during Farm and Home Week.

Orlin J. Scoville, former K-State staff member now with the U.S. Department of Agriculture, will talk on contract farming and integration, and F. R. Senti, also of USDA, will talk on wheat utilization. Frank Miller of the University of Missouri will address the group at the Dec. 2 banquet.

Other speakers include Glenn Beck, director of the Kansas agricultural experiment station; Leonard Schruben, K-State agricultural economist; Sykes Trieb, extension marketing information specialist; and Mildred Walker, extension specialist in consumer information.

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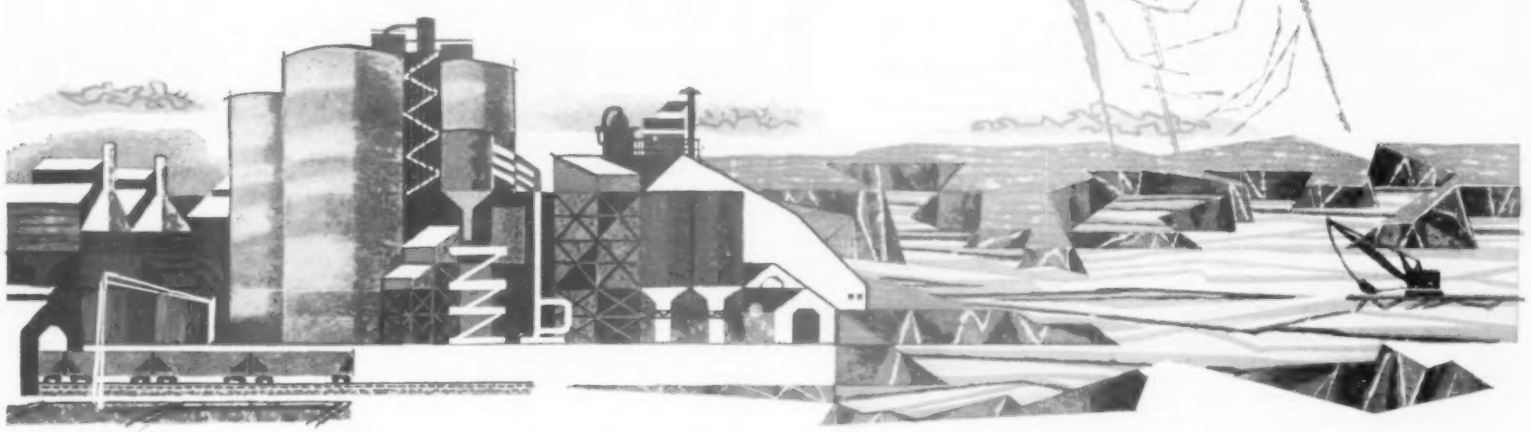

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New Feeding Developments Outlined at Oklahoma Event

STILLWATER, OKLA.—Some of the currently timely topics in livestock and poultry feeding—things like pelleting, energy feeding standards, enzymes, confinement raising of hogs and high-efficiency turkey rations—received attention at the Oklahoma Formula Feed Conference.

The conference, held recently at Oklahoma State University, featured nutrition talks by OSU and guest authorities. Various other subjects of interest to feed men were discussed, too. And, with the Oklahoma Poultry Industry Convention combined with the feed conference, those on hand heard several talks relating to the poultry industry as well as the feed industry.

Reviews of the talks at the two-day event follow:

An Evaluation of Energy Feeding Standards: Dr. Allen D. Tillman of the OSU animal husbandry department presented an evaluation of energy feeding standards. He explained why net energy is dependent on factors which are completely independent of ration composition and also quantity of feed involved. Net energy, Dr. Tillman said, is a measure of what a feed might accomplish and not a mere measure of what it contains.

"It seems," he said, "that we have set our sights too high when we try to identify feed values in terms of actual production . . .

"Corresponding to the guarantees of seedmen and fertilizer dealers would be the guarantees of feeds on the basis of their digestible and metabolizable energy contents. To project these into final results by guaranteeing so much net energy, productive energy or starch equivalents per unit of feed by pretending that these small fractions of the feed energy are not affected by amount of feed consumed, activity of animal, environmental temperature, whether the animal is scrub or a high producing one, and all management practices, bespeaks of hypocrisy. This is precisely what is being done when feed manufacturers characterize and sell their feeds on the basis of net or productive energy contents. In this light it is recommended that we limit the evaluation of feeds to those measures which characterize the feed only. At the present time this would mean metabolizable energy for poultry and digestible or metabolizable energy for other livestock."

(Dr. Tillman's paper will be reproduced in a subsequent issue of Feedstuffs.)

Pelleting Feeds for Beef Cattle and Sheep: Dr. L. S. Pope of OSU pointed out that probably no development in feed processing has caused as much stir during the past few years as has the cubing or pelleting of finely ground feeds or complete rations.

In general, he said in summarizing his review of research reports, results of tests to date indicate that pelleting of single grains may improve feed efficiency but have little effect on performance. Pelleting high-roughage mixtures in which less palatable roughages are used may markedly improve performance and feed efficiency—apparently due to increased feed intake and a reduction in energy expended in digestion and assimilation of nutrients. With good quality roughages, little improvement from pelleting has been shown. With highly concentrated rations, pelleting may cause a reduction in gain, but markedly improve feed efficiency. Much basic research is needed to determine the effect of physical changes in feeds on their nutritive value for cattle and sheep.

Enzymes and Animal Feeds: Dr. A. J. Wood of the University of British Columbia told of British Columbia and other work on the various enzymes in swine feeding. At this time, he said, it appears that much more research is needed before practical recommendations can be made on the addition of enzymes to swine rations. The addition of enzymes to milk replacer formulas for calves may also be of doubtful value.

The effect of enzyme supplementation of poultry rations, however, presents a different picture, as indicated by Washington work where benefits were obtained under certain conditions.

"It will be of particular interest," he commented, "if this response by poultry to enzyme supplementation of barley rations can be shown to be related to the malting activity of the particular barleys. The wedding of the poultry nutritionist to the brewmaster should beget some interesting progeny. One would suspect that a new type of 'hybrid vigor' might be expressed.

"In the same vein, it would be wise to take a second look at 'pigeon milk' since this avian species provides a predigested enzyme-supplemented feed that produces squab growth rates that are in the relative sense well in excess of those achieved with chicks. 'Pigeon milk' has been shown to have 35-37% fat, 54-65% protein,

(Turn to OKLAHOMA, page 94)

Plan for Merger with Eastern States Okayed

WEST SPRINGFIELD, MASS.—The number of New England egg marketing cooperatives considering merger with Eastern States Farmers' Exchange reached eight recently following a vote by members of Connecticut Farmers Cooperative Assn., East Hartford, Conn.

Following similar action by its directors, the membership of Connecticut Farmers voted unanimously to accept in principle the plan of consolidation with Eastern States already worked out by the New England Egg Marketing Committee, representing seven marketing associations and Eastern States, states William H. Prigmore, chairman.

Directors and members of most of the other cooperatives involved have previously voted to accept in principle the merger plan. On Nov. 20, Eastern States members were scheduled to convene at West Springfield to consider necessary bylaw changes to make it possible for Eastern States to enter the marketing field.

Eastern States Co-op Feed Policy Explained

BRENTWOOD, N.H.—Farm members will not be forced to buy Eastern States Farmers' Exchange feeds under the proposed merger of several New England poultry and egg marketing cooperatives with the Eastern States organization.

This was explained by W. H. Prigmore, assistant general manager of the ESFE, at the recent annual fall meeting of Rockingham County poultrymen at Brentwood.

"The Eastern States thinking," Mr. Prigmore said, "is that if this project helps poultry farmers, a lot of them will want to buy Eastern States feed. The choice, however, will be theirs," he said.

The cooperative representative emphasized that his organization aims to fill a need in New England for a guaranteed supply of eggs produced in the area and offered under a single brand name that will become known in the market. Modern promotion and advertising are being planned, he said.

The cooperative is located at West Springfield, Mass.

Charles B. MacLeod

Ogden P. Confer

Ogden Confer Named President of Hubbard

MANKATO, MINN.—The board of directors of Hubbard Milling Co., Mankato, has announced the election of Charles B. MacLeod to the position of chairman of the board and Ogden P. Confer to president, succeeding Mr. MacLeod.

Mr. MacLeod, who has been president of the firm since he joined the organization in 1945, will continue as chief executive officer of the company. Mr. Confer joined the firm in 1946 and has since served in various capacities in the company, including vice president and manager of the feed division.

Mr. MacLeod entered the milling and grain business in 1922 with Commercial Milling Co., Detroit, and subsequently held various executive positions with General Mills, Inc., Wabasha Roller Mill Co. and International Milling Co. before taking charge of Hubbard operations in 1945.

The new president, Mr. Confer, is a grandson of George M. Palmer, one of the founders of Hubbard Milling Co. in 1879 and its active head until his death in 1939. A graduate of the school of business administration at the University of Minnesota in 1943, Mr. Confer joined the firm in 1946 after three years of military service.

Hubbard Milling Co. has continuously operated a flour mill in Mankato for the past 79 years. In 1928, the firm pioneered the manufacture of feed concentrates to balance farm grains.

Located in Mankato are the company's general office, flour mill, two feed mills and grain elevators. The firm also operates feed manufacturing plants at Marion, Ind., opened in 1952, and Cedar Rapids, Iowa, opened in 1957. The flour division maintains an office for the purchase of grain in Minneapolis as well as a sales branch office at New York.

Hubbard flours and Hubbard's Sunshine Feeds are now sold in 22 states.

CAPITAL COMMENT

BY JOHN CIPPERLY

WASHINGTON—U.S. Department of Agriculture loan impounding reports for wheat and soybeans have been broadly construed here by trade sources as essentially bearish on nearby contracts.

USDA said this week that 453.8 million bushels of 1958-crop wheat had been put under price support through Oct. 31. Soybeans put under support totaled 23 million bushels.

It has been reported that in the case of wheat, it had been anticipated that as much as 500 million bushels would have been impounded by Oct. 31. At no time, however, did USDA observers expect that quantity. They noted that since the previous report, the only large impetus of wheat impoundings might be expected from the spring wheat area, which ordinarily does not contribute substantially to loan programs as of this reporting date.

In the case of soybeans, only a nominal increase in loan commitments over about the same time a year ago is shown.

Bearish observers noted that for both wheat and beans, there were substantial increases in the crops, but the loan commitments this year have been falling short of the loan pace a year ago when each of these crops was smaller. Such a comment is premature and can only have a passing effect on the crop year market action, but since the loan account fell short of expectations, it must have an immediate bearish connotation.

Another collateral factor which may have more seriously immediate bearish influence on feed grain markets is the knowledge that the grain export trade has gone on a credit "binge" wherein firms have obtained some $27 billion in credits for the sale of feed grains to foreign buyers.

Approval of these credits by USDA does not necessarily mean that the export firms will draw on these credits to make sales of feed grains, but they stand as an immediate threat that this quantity of buying power will bypass the domestic free market and be filled from CCC stocks, delivery f.o.b. seaboard. If the export houses see fit to push immediate sales with concentration on any one of the grains, it would take export buying out of the free market. To that extent it would be a bearish influence, and in the case of corn could take the edge off the recent run-up in corn prices, which seemed to reflect the relatively small supply in the Chicago area.

California Co-op Plans New Mill

LOS ANGELES—The Poultrymen's Cooperative Assn. of Southern California has signed a contract with Pacific Milstallation, Inc., San Francisco, for the erection of a $500,000 feed mill at Riverside, Cal.

This marks the final stages of a branch facility construction program started in 1949 by the association, said Charles F. Allen, PCA general manager.

The purchase of land in Riverside was followed by the construction of a 14,000 sq. ft. warehouse and office.

According to Mr. Allen, PCA has been using its central plant at Los Angeles to fill all its feed needs.

The completed facility will include a 30-ton hourly batching unit, a 2,100-ton storage warehouse, a 165-ton storage unit for bulk finished feeds, a display room and an office.

Melvin Gautier, president, Pacific Milstallation, Inc., indicated that construction of the mill will begin at once. The mill is scheduled to be in operation by early summer, 1959.

The semi-automatic, electronically-controlled feed plant will batch-mix feeds at a top capacity of 30 tons hourly. The machinery components will reduce labor to a minimum, requiring less than ½ man-hour per ton of finished product, Mr. Gautier said.

The plant, designed by Sherman Boss, manager PCA feed department, and H. E. Prescott, engineer with J. W. Williamson & Son, Inc., will work all principal feed ingredients in bulk. Incoming rail and truck shipments of materials will be unloaded by air vacuum system, power shovel or hydraulic hoist. The plans include 14 ingredient storage tanks, providing 1,250-ton bulk capacity. A pellet and crumble line is included, and all liquid feed ingredients such as animal fat and fish solubles will be metered into the mix by high pressure pumps.

The mill designers have attempted to combine high mixing accuracy and low-manpower automatic handling, to gain the lowest possible mixing cost, Mr. Allen said.

James Thomas Dies

ST. JOSEPH, MO.—Services were conducted here recently for James M. Thomas, 85, a retired grain dealer. Mr. Thomas, who died recently at his home, was the father of Nelson K. Thomas, secretary of the St. Joseph Grain Exchange. Mr. Thomas, who had been in the grain business here from 1912 to 1935, was a charter member of the St. Joseph Grain Exchange.

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James E. Sharon

Miller Publishing Co. Announces New Feedlot Publication

MINNEAPOLIS—Feedlot, a new bi-monthly magazine, will be introduced in March by the Miller Publishing Co., it was announced this week by Milton B. Kihlstrum, president.

The new publication will have national controlled circulation to feedlot owners and their operating personnel. Miller Publishing Co. publishes Feedstuffs and six other business publications.

In recent years the trend to mass feeding of cattle and lambs has given rise to an increasing number of feedlots specializing in finishing feeding for marketing.

James E. Sharon has been named editor of Feedlot. A graduate in agricultural journalism of Iowa State College, Mr. Sharon joined the editorial staff of Miller Publishing Co. in 1957. He was formerly associate editor for The Farmer and farm editor of a daily newspaper in Michigan. Editorially, Feedlot will present nutritional advances, management and operational methods, and background market news.

Five issues of Feedlot are planned for 1959: March-April, May-June, July-August, September-October and November-December.

Soybean Meal Futures Prices Move Higher

MEMPHIS—The nearness of cold weather over the nation, which is expected to give a substantial boost to mixed feed demand, sent soybean oil meal futures higher the past week on the Memphis Board of Trade. Cottonseed oil meal prices were irregular.

Good cash oil meal business was reported much of the period. On Nov. 19 cottonseed oil meal demand was said to be fair, while soybean oil meal enjoyed continued good business.

Speculative activity was noted in futures, as the volume of turnover moved considerably upward, compared with the last few weeks. Since colder temperatures are due in the East, new interest developed in Eastern Trunk Line soybean oil meal. Sacked old process cottonseed oil meal had a technical correction.

Unrestricted soybean oil meal closed Nov. 19 unchanged to $3.50 ton higher than Nov. 12, Eastern Trunk Line soybean oil meal 75¢ to $2.50 higher, bulk solvent cottonseed oil meal 25¢ to $1.50 higher, and sacked cottonseed oil meal unchanged to $4 lower.

Trading volume amounted to 12,900 tons of unrestricted soybean oil meal, 3,500 tons of Eastern Trunk Line soybean oil meal, 1,700 tons of bulk solvent cottonseed oil meal, and no sacked old process cottonseed oil meal.

"Happy" at Response To Request for Proxies

MONTREAL — An unidentified company which has sought to buy 300,000 shares in Ogilvie Flour Mills Co., Ltd., Canadian flour and feed firm, may not be "altogether successful," according to a recent report from Ogilvie officials.

Officials said they are "very happy" with the response of shareholders to management's request for proxies.

An offer had been made by the National Trust Co. in behalf of an unnamed buyer to buy 300,000 common shares at $44.75 a share. The purchase of near that total was seen as necessary if the buyer is to gain control of the company.

Officials of Gairdner & Co., Toronto investment firm associated with the bid for control, did not disclose how many shares had been deposited with the trust company in response to the offer. The identity of the buyer has not been revealed, either.

One observer suggests that the fate of the attempt will not be disclosed until the company holds its annual meeting Dec. 4.

Turkey Poult Output Up Sharply

WASHINGTON — Hatchery production of turkey poults during October — although a seasonally low month—was up sharply from a year ago, the U.S. Department of Agriculture reports. The total for all breeds was more than twice that of October, 1957.

Production of heavy white breed poults totaled 602,000 in October, compared with 292,000 in the same month last year. Other heavy breed poults totaled 118,000, up 76% from a year earlier.

Light breed poults hatched during October totaled 454,000, which represents an increase of 169% over a year earlier.

A heavier than normal hatch was expected in November also on the basis of reports on numbers of turkey eggs in incubators on Nov. 1. Most of the increase in heavy breed poults will be in the heavy white breeds.

An increase in turkey production in 1959 has been predicted by USDA and other observers.

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Laying Flock Jan. 1 to Be Up 2-3% from Year Ago

WASHINGTON — About 2 to 3% more layers than the 321 million of Jan. 1, 1958, are in prospect for the beginning of 1959, the U.S. Department of Agriculture reports.

USDA marketing specialists expect the sharp increase in pullets hatched in 1958 to more than offset a smaller number of hens carried over from earlier years. Fewer hens are expected than in the unusually large carryover of the year before.

Egg prices in 1959 probably will average below 1958. The decrease will be largest in the first half of the year when the increase in production will be largest. Prices will rise relative to a year earlier in the second half of 1959 when the increase in production over the same period of 1958 is likely to be small. In the final quarter of 1959, prices may be above a year earlier, USDA reports say.

Layer numbers totaled about 316 million Nov. 1, about the same as a year earlier. Potential layers (hens and pullets of laying age plus pellets not of laying age) totaled 378,999,000, 3% ahead of a year earlier. (Also see table.)

Laying Flock Size

As a consequence of the partially offsetting trends in numbers of pullets and numbers of hens, the Jan. 1 flock of potential layers will be about 2 to 3% larger in 1959 than in 1958. The 1958 flock was lightly weighted with pullets, 64%, as contrasted with hens, 36%, a reflection of the small number of chicks raised. In January, 1959, the pullet-hen ratio will be closer to the 1952-56 average of 67:33.

Contrary to practice recommended for commercial flocks, no noticeable trend toward an increased proportion of pullets in the U.S. as a whole is evident. The high cost of supplying replacement layers, and

(Turn to LAYERS, page 93)

Hens and Pullets of Laying Age, Pullets Not of Laying Age and Potential Layers on Farms, Nov. 1

Year—	North Atlantic	E. North Central	W. North Central	South Atlantic	South Central	Western	United States
Hens and Pullets of Laying Age on Farms (thousands)							
1947-56 (average)	57,978	67,907	93,645	32,660	55,594	35,839	343,623
1957	55,758	61,987	83,980	32,781	44,236	36,507	315,249
1958	53,459	64,100	83,340	33,328	44,156	37,687	316,070
Pullets Not of Laying Age on Farms (thousands)							
1947-56 (average)	11,398	14,292	26,090	8,476	14,626	7,136	82,016
1957	8,121	7,315	14,478	6,708	7,664	6,824	51,110
1958	9,533	9,215	18,445	7,885	10,338	7,513	62,929
Potential Layers on Farms* (thousands)							
1947-56 (average)	69,375	82,198	119,735	41,136	70,219	42,975	425,640
1957	63,879	69,302	98,458	39,489	51,900	43,331	366,359
1958	62,992	73,315	101,785	41,213	54,494	45,200	378,999

*Hens and pullets of laying age plus pullets not of laying age.

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CONFERENCE

(Continued from page 1)

sier, president, American Veterinary Medical Assn., Ohio State University, Columbus, at the banquet the evening of Dec. 8. A social hour will precede the banquet.

Speakers and Topics

Activities get under way at 9 a.m. Dec. 8 with the session on swine. Speakers and their subjects are: Dr. A. C. Todd, University of Wisconsin, "Control of Internal Parasites in Swine"; Dr. Merle Brinegar, Allied Mills, Inc., Libertyville, Ill., "Nutritional Diseases and Minerals for Swine"; Dr. D. E. Becker, University of Illinois, "Balancing Swine Rations"; Dr. Robert Nesheim, the Quaker Oats Co., Chicago, "New Concepts of Swine Production"; Dr. H. C. H. Kernkamp, University of Minnesota, "Deficiency Diseases in Swine"; Dr. J. L. Krider, Central Soya Co., Inc., Ft. Wayne, Ind., "Growth Stimulants." Moderator of the session will be Dr. Chase Wilson, Consumers Cooperative Assn., Kansas City.

Speakers and their subjects for the poultry session the afternoon of Dec. 8 are: Dr. H. R. Bird, University of Wisconsin, "The Role of Nutrition and Management in Growth and Production"; Dr. E. L. Stephenson, University of Arkansas, "Solving Broiler Production Problems"; Dr. Rollin Thayer, Oklahoma State University, "Meeting Nutritional Needs of Turkeys as Related to Disease Control"; Dr. Reed Rumsey, Dr. Salsbury's Laboratories, Charles City, Iowa, "Compatability of a Water Medication with Feed Medication"; Dr. C. L. Nelson, "The Problem of Developing a Poultry Practice." Maurice Wells, vice president, Waterloo (Iowa) Mills, is moderator.

Speakers for the ruminant session are: Dr. B. F. Barrentine, Mississippi State College, "Methods of Controlling Bloat in Cattle and Sheep Grazing Legume Pastures"; Dr. Cloy B. Knodt, Nutrena Mills, Minneapolis, "Additives in Ruminant Feeds"; Dr. John B. Herrick, Iowa State College, "Combatting Ruminant Stress Problems Before and After Reaching the Feed Lot."

Discussion of cooperation between veterinarians and feed men will follow the ruminant discussions. Speakers are Dr. W. E. Poley, Zip Feed Mills, Inc., Sioux Falls, S.D., who will talk on "Working with Veterinarians in the Feld," and Dr. John Aiken, South Sioux City, Neb., and Dr. James H. Magilton, David City, Neb., both practicing veterinarians, who will discuss "Working with Feed People." Moderator of the discussions is Dr. Frank B. Young, secretary-treasurer of the Iowa Veterinary Medical Assn., Waukee, Iowa.

The session on small animals the afternoon of Dec. 9 will wind up the conference with talks by Hovey Burgess, General Foods Corp., Battle Creek, Mich.; Dr. G. T. Edds, Ft. Dodge (Iowa) Laboratories, and Dr. Lester E. Fisher, Berwyn (Ill.) Animal Hospital. They will discuss, respectively, "Proper Nutrition of Pets as a Preventive of Disease," "Proper Nutrition for Small Animals" and "Feeding Unusual Pets."

Dr. J. L. Krider — Dr. Cloy B. Knodt

Arkansas Poultrymen To Study Possible Broiler-Union Alliance

HOPE, ARK.—The Southwest Arkansas Poultry Producers Assn. has decided to investigate the results of the recent affiliation by the Texas Broiler Assn. with the AFL-CIO Meat Cutters' Union, according to a report in the Poultry & Egg Weekly.

The group said that the action was being taken because "continued low broiler prices threaten to liquidate many growers in this area."

Tom Silvey, Bobcaw, Ark., president of the poultry association, said, "We're not taking a stand at this time, either in favor of or in opposition to affiliation with the union."

He said his group is interested in obtaining facts concerning the Texas move.

The Poultry & Egg Weekly story said an association resolution deplored the "trend toward vertical integration in the broiler industry which threatens our dynamic American way of life and family type of farm ownership and operation."

Mr. Silvey said his group plans an all-out campaign to extend membership of the association into all seven or eight southwestern Arkansas counties where broilers and eggs are produced.

Dawe's to Construct New Plant in Italy

CHICAGO — Dawe's Laboratories, Inc., Chicago, has announced that plans are under way for the construction of the company's first European plant for the production of feed fortification products.

Announcement of the move was made by Sam Tepper, executive vice president, who stated on his return from a recent trip to Europe that the land has been acquired and plans are under way.

The new plant will be at Torre Annunziata, Italy, on land adjacent to the pharmaceutical plant and laboratories at Lepetit S.P.A., which will have a financial interest.

Mr. Tepper said that joining of Dawe's and Lepetit in this activity is a logical occurrence, in view of Dawe's progress in the European market and the many pharmaceutical products produced by Lepetit which have an agricultural application. Among these are a wide range of antibiotics and chemotherapeutics on which he said Lepetit holds leadership among European producers.

Research and product development groups of both companies will augment each other, he said, and it is anticipated that new feed additives and agricultural specialties will be introduced to the market.

Dawe's Laboratories, S.A., Milan, Italy, in charge of Dr. Giuseppe Riva, vice president, will be in the marketing organization for this production.

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Feed Men Receive Information, And Advice on Bulk Handling Systems, Costs and Problems

By ROGER BERGLUND
Feedstuffs Managing Editor

KANSAS CITY — Information on bulk handling of finished feed came in bulk last week.

The occasion was the annual Feed Production School, held Nov. 12-14 in Kansas City under the sponsorship of the Midwest Feed Manufacturers Assn. More than 900 feed men, another record high, turned out for the event at the American Royal Bldg.

Two days of the three-day program were devoted to bulk, with talks and demonstrations on the design, operation and costs of various bulk handling systems. A feature of this part of the program was a report on field studies of three basic bulk systems for feed mills. In addition, there were talks on certain problems encountered in bulk handling, such as contamination, shrinkage, fines, product flow and bulk feed identity.

As for the future of complete feeds in bulk form, a feeder told feed men at the school that he looks for complete pelleted feeds to take over in cattle and swine feeding. Speaking at the Small Mill Short Course, O. C. Swackhammer, Manley Farms, Tarkio, Mo., predicted that in three years 90% of the hogs in the Corn Belt will get complete pelleted rations, that in five years most cattle also will receive complete rations and that in five years 90% of all livestock feeds will be complete pelleted rations delivered in bulk.

Demonstrations

Examples of bulk systems were set up and operating in live demonstrations. There were special demonstrations, too, including one on a possible new bulk system which utilizes a straddle carrier to handle and transport portable bulk bins. (The talks, discussions and demonstrations are reviewed below.)

The program also included specialized sessions on such things as pelleting, mill remodeling and liquid handling. And a special feature this year was a one-day Small Mill Short Course. (Discussions presented in these parts of the program will be summarized in next week's Feedstuffs.)

The production school continues to grow, and this year it attracted feed men from 45 states, Canada and Venezuela. Attendance has more than quadrupled since the school was started in 1950, reflecting interest in and the increased importance of mechanization and advances in feed production and handling for a continually changing market.

Attention of feed men to the expansion and value of the school was called by opening speakers, including Hugh Kelley, Ames (Iowa) Reliable Products Co., honorary president of the Midwest association. It was pointed out that, based largely on the 1957 production school, the association received the American Society of Association Executives' grand award in 1958 for service to industry.

Increased Efficiency

Larry Alley, Pay Way Feed Mills, Kansas City, association director and active in the production school, cited the value of time study data and cost figures from last year's school. Noting the increased efficiency of feed mills, he said that the industry now thinks not in terms of man-hours per ton but in terms of tons per man-hour. A labor requirement of ½ to ¾ man-hour per ton is now not uncommon.

J. D. Johnson, General Mills, Inc., Minneapolis, school committee chairman, said that the area for research and emphasis at the 1959 school has already been determined—it will be pelleting. And, he added, plans for research and programs are being projected ahead by five years. Also, he pointed out, the school is not just a regional event now, as it draws feed men from all across the country.

In presenting certificates to production school committee members, Lloyd Larson, executive vice president of the Midwest group, called the 1958 school one of the finest held, with the discussions and equipment demonstrations making available a wealth of information.

College students and faculty men as well as feed men were on hand for the school. For example, among those present were five staff members, the maintenance man and 22 students from the feed technology program at Kansas State College. Twenty-one students from Colorado State University also were present.

Summaries of bulk handling talks and demonstrations and a question period follow:

PRINCIPLES OF MATERIALS HANDLING AS APPLIED TO BULK HANDLING OF FINISHED FEEDS —Richard Muther of Richard Muther & Associates, consulting engineer, Kansas City: There are seven principles of materials handling which are among the most important from a bulk handling standpoint.

1. Every problem in selection of a handling system depends on the conditions it has to meet. Basic things to look for in determining the conditions include: (a) Nature of the materials, (b) quantity or rate of movement of each, (c) routing of materials.

2. The solution to every problem is a compromise involving several alternatives. In addition to costs, there are several other points to consider. Ten basic objectives which any system should strive to meet are: Movement, directness, convenience, safety and quality, space saving, combined activities, flexibility, productive aid, economy of operation, economy of investment. These objectives should be set in the form of a checklist in evaluating any handling system.

3. Efficient handling should not be gained at the expense of product quality. In bulk operations, product contamination, damage or loss and difficulty of cleaning become considerations.

4. Materials handling analysis is an integrative activity. Thorough analysis results in a sound integration of equipment, layout, personnel and building features.

5. A handling system is only as good as the storage facilities it supports. A fine handling system standing idle or rehandling-and-rehandling because of limited holding bin capacity is wasteful. Likewise, the system that cannot keep pace with or cannot deliver to or take from all the storage bins available is extravagant.

6. The larger the unit load, the fewer trips required to move a given amount of material. First, the larger unit load takes a different kind of loading, unloading and usually a different kind of conveyance. Second, while fewer trips are required, there is generally greater investment in equipment and generally less flexibility to accommodate varieties of product and fluctuations in quantity.

7. Every change or modification of a materials handling system is dependent in part on the existing facilities available.

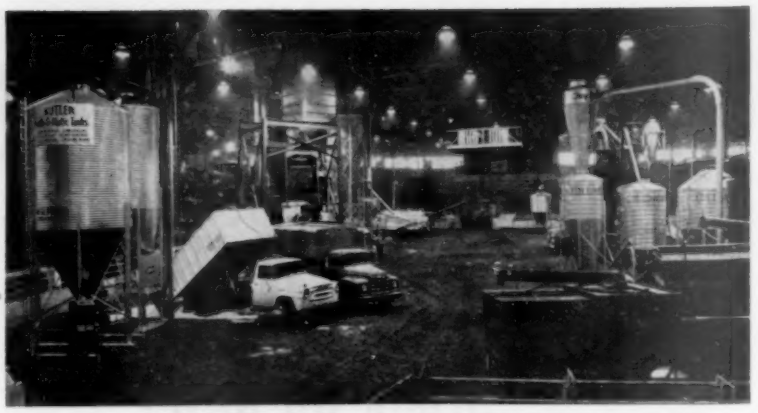
SURVEY OF EXISTING BULK HANDLING METHODS — Cliff James, Richard Muther & Associates, Kansas City: The Midwest Feed Manufacturers Assn.'s 1958 production school research project dealt with the operations and costs of three basic bulk handling systems. The study was conducted by engineers of the Muther firm under sponsorship of the Midwest association.

The handling systems (also illustrated in accompanying pictures) are:

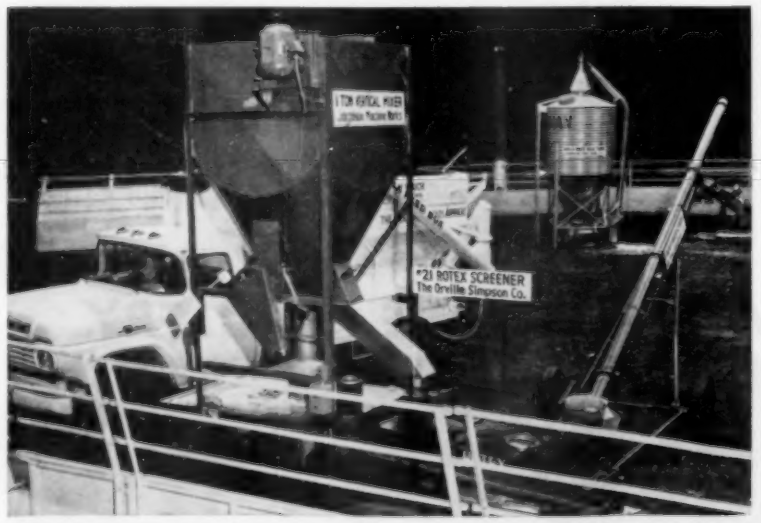
Type I—Direct from Mixer. The feed is taken directly from the mixer to the delivery vehicle, either truck or car.

Type II — Through Packer Bins. The feed goes from packer holding bins either through a packing scale and then to delivery vehicle or, by by-passing the packing scale, into the delivery vehicle.

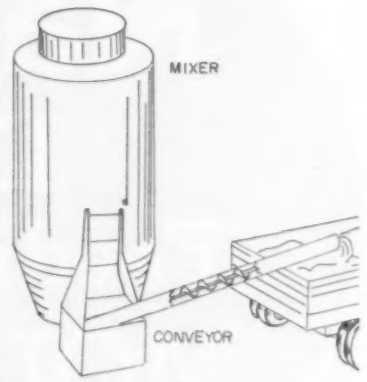
Type III—From Holding Bins. Feed



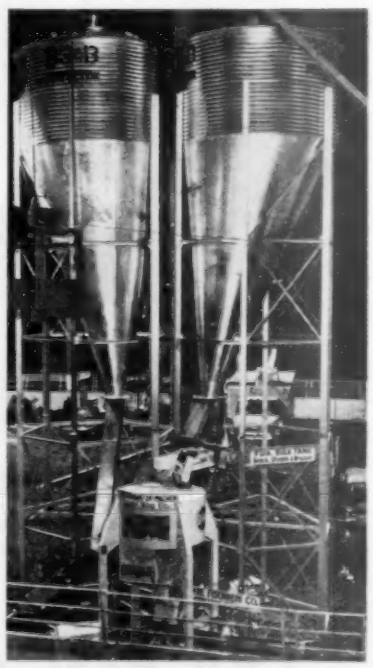
IN ACTION—The arena in the big American Royal Bldg. in Kansas City was the scene of the 1958 Feed Production School, sponsored by the Midwest Feed Manufacturers Assn. The more than 900 feed men at the event sat on the left for the main school and bulk demonstrations, and on the right (out of view here) for the Small Mill Short Course. As part of the program, examples of bulk handling systems were set up and operating on the left. On the right may be seen part of the facilities, examples of small mill operations, used as part of the short course. More than 50 equipment firms had about a half million dollars worth of equipment at the school. In addition to that shown here, other equipment was demonstrated in other parts of the building.



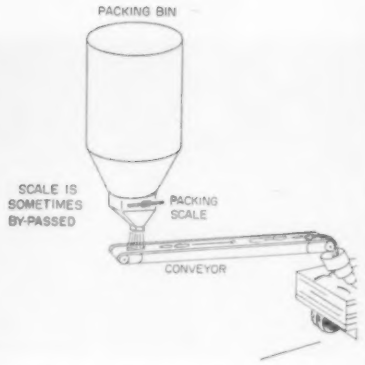
TYPE I SYSTEM—Equipment was set up and operated at the Feed Production School to illustrate certain basic types of bulk handling systems studied in a research project and discussed at the school. Shown here is an example of a Type I system, where feed is taken directly from the mixer to the delivery vehicle. Used in this demonstration were a Jacobson vertical mixer, Rotex screen by Orville Simpson Co., a Burrows auger elevator and a Sudenga bulk truck.



Type I System, Direct from Mixer



TYPE II SYSTEM—This equipment was used to illustrate a Type II system of bulk handling, where the feed goes through packer bins. Feed goes from packer holding bins either through a packing scale and then to delivery vehicle or, by-passing the scale, into the truck. Equipment used in this demonstration included Black, Sivalls & Bryson bulk bins, Southland BF Packer of Chase Bag Co., Dave Fischbein Co. sewing equipment, pneumatic conveying system by Conveyair, Inc. (out of view here), Universal bucket elevator, bulk truck by Productive Acres Mfg. Co.



Type II System, Through Packer Bins

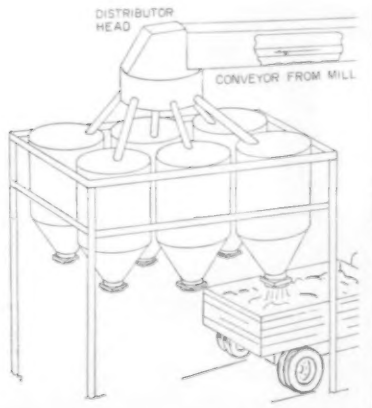
is taken from the mixer, pelleting or crumblizing equipment and put into holding bins. It then goes to the delivery vehicle as needed.

Generally, Type I is typical of a small operation, whereas the second types apply more to larger plants. Three mills were studied for each of the systems.

The study showed that many different methods and installations are available. A great variation in capital investment was reported. Actually, no two installations were quite the same. The feed man should examine his own situation and evaluate the various systems available.

An especially limiting factor in some cases is a lack of holding bins for the finished feed. Multiple holding bins result in less interference with production and require less coordination between production and shipping.

The study showed that small custom mills as well as the larger feed manufacturers are successfully handling feed in bulk. However, it also



Type III System, From Holding Bins

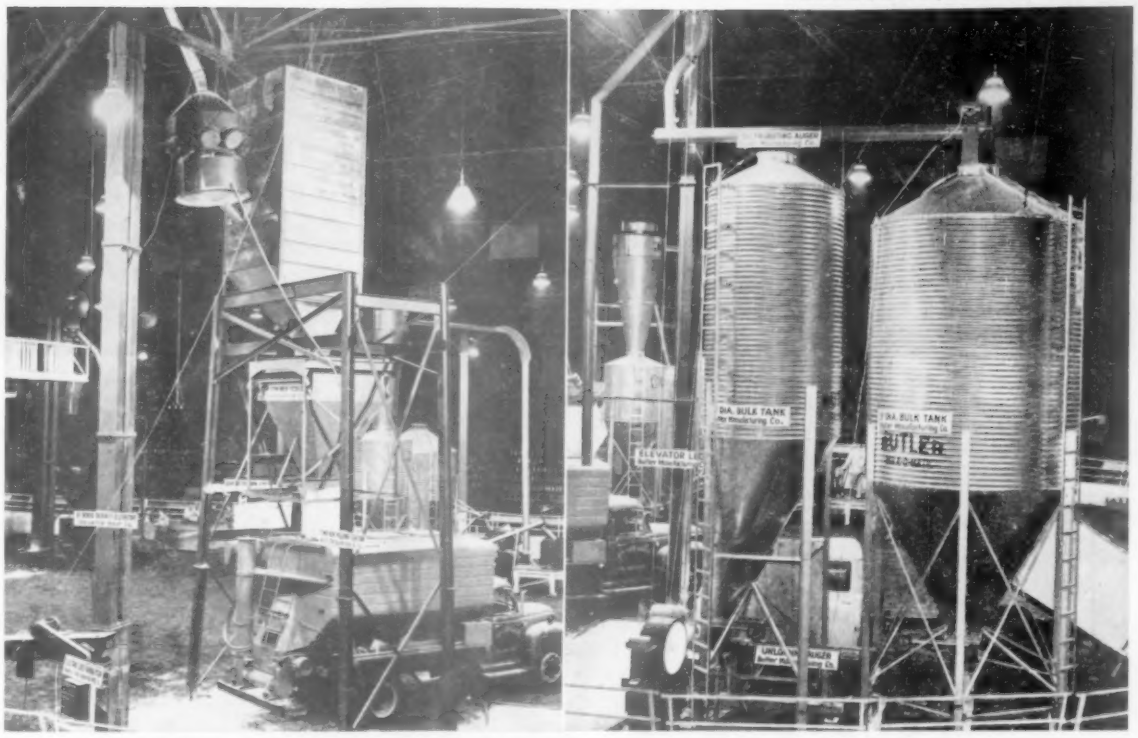
showed that bulk handling tends to increase problems and does have limitations. Difficulties with fines and contamination and handling heavy molasses feeds have not yet been completely overcome.

Cost Figures

The study endeavored to obtain cost-per-ton figures for operating costs. The research was concerned only with the loading out function, and cost figures for the various systems were calculated from available information. The figures, in some cases based on estimates, are not to be used as a yardstick but only as a guide to approximate costs. In considering the figures, recognition must be given to the wide spread in labor rates among the mills using similar systems. Also, it is noted that the figures do not include packing labor. Where a bulk system eliminates the need of a packer, this would be an additional saving.

Table 1 summarizes the cost and man-hour figures for the three systems studied. (The 0 man-hours per ton for loading out in some cases result from the foreman's starting the system, which automatically shuts off, while the customer handles the loading out spout, or from the customers' loading their own trucks by opening bin slides.)

Discounts allowed on bulk feed were mostly $3 or $4 per ton, with



TYPE III SYSTEM—Two examples of a Type III bulk handling system were shown as part of the research report and talks on three basic bulk handling systems for finished feed. In this system, feed is taken from the mixer or pelleting or crumblizing equipment and put into holding bins. It then goes from the bins to the delivery vehicle as needed. On the left is a sample two-bin holding station (one of the bins is missing here) by U. E. Fitzpatrick & Co. Included here are a Dracon conveyor by Ehrsam, electric distributor and control panel by Hayes & Stolz, Universal bucket elevator and a Dorsey bulk truck. In the second picture is a Butler bulk station, with a Fairbanks-Morse scale and a Dodgen bulk truck.

TABLE 1. Approximate Investment Costs, Operating Costs Per Ton and Man-Hours Per Ton

Type of system	—Capital investment— in bulk handling mill equipment	in bulk handling truck equipment	Operating cost per ton for loading out only: Bulk	Bags	Man-hours required per ton for loading out only: Bulk	Bags	Labor rate per hour
I	$ 350 to $ 2,550	$ 400 to $2,300	$0.29 to $0.35	$0.59 to $0.65	0.167 hrs. to 0.250 hrs.	0.333 hrs. to 0.571 hrs.	$1.30 to $1.75
II	$ 1,500 to $ 2,550	$1,250	$0.02 to $0.22	$0.39 to $0.47	0.000 hrs. to 0.111 hrs.	0.250 hrs. to 0.375 hrs.	$1.20 to $1.85
III	$12,000 to $16,550	$1,600 to $2,800	$0.02 to $0.12	$0.45 to $0.57	0.000 hrs. to 0.056 hrs.	0.250 hrs. to 0.375 hrs.	$1.10 to $1.87

$5 on some feeds. One mill offers a sliding scale based on quantity, ranging up to $7. In the opinion of the mill operators who used their own delivery trucks, cost of delivering sacked feed is two to three times as much as for bulk. Savings are mainly in unloading at the termination point.

Distance traveled by a truck is a big factor in the cost figure since this remains the same whether the truck is carrying sacked or bulk feed.

Actual cost figures for the different delivery methods were practically unobtainable. However, one mill separated costs for its own trucks in its accounting records. Total costs to deliver in bulk (including truck repairs, gasoline, oil, labor, depreciation, insurance, taxes, towing, driver overtime, etc.) were 18.4¢ per mile and $3.80 per ton, with 70,000 miles traveled per year. Total costs to deliver in sacks were 24.7¢ per mile, or $4.67 per ton, with 50,000 miles traveled per year. A radius of some 300 miles encompasses the area served by the trucks. Since drivers do not load their own trucks, the cost of loading is not included in the above figures.

One operator said that when bulk deliveries are made to the farm, cost advantages from bulk are frequently offset by unfavorable delivery conditions.

Most of the mills had a yard truck scale before installing bulk equipment, and this weighing method is used by them. Mills with a Type II system are able to use packing scales, but even with this, yard scales are frequently used to verify weight. Price and installation costs for yard truck scales range from $5,000 to $10,000.

OPERATING ECONOMICS OF BULK HANDLING OF FINISHED FEEDS—Calvin Hunzeker, the O. A. Cooper Co., Beatrice, Neb.: Bulk handling is economically sound but only when such operations do not back up production operations and thereby add to production costs. Bulk must be analyzed in the light of total manufacturing and distribution operations. A basic principle of material handling should be kept in mind: "No handling is the best handling, both for product and lowest handling cost per unit of product."

(The different bulk systems which were set up for the school were demonstrated in connection with Mr. Hunzeker's talk. Also see accompanying illustrations and the descriptions

(Turn to page 14)

PROCEEDINGS AVAILABLE

KANSAS CITY—The complete proceedings of the 1958 Feed Production School are available. The illustrated 200-page book includes a report on field studies of bulk handling plus texts of talks and discussions on bulk handling, pelleting, liquid handling, mill remodeling, micro-ingredient mixing and maintenance cost control. The book, copyrighted by the Midwest Feed Manufacturers Assn., may be obtained at a price of $15 from the association, 20 W. 9th St. Bldg., Kansas City, Missouri. Also available, at a price of $5, is a book containing the proceedings of the Small Mill Short Course, held in connection with the production school.

SUBJECT IS BULK—Pictured here are some of the speakers and program participants in bulk handling sessions at the Feed Production School in Kansas City. Left to right in the first photo are Robert F. McLeod, Wirthmore Feeds, Inc., Waltham, Mass.; Fred Darragh, Jr., the Darragh Co., Little Rock; Paul Berg, Professional Engineer, Ft. Wayne, Ind., and J. D. Johnson, General Mills, Inc., Minneapolis. In the second photo are Marion J. Kloster, General Mills, Inc., Minneapolis; Robert R. Clark II, the Quaker Oats Co., Chicago; Calvin Hunzeker, the O. A. Cooper Co., Beatrice, Neb., and F. N. Mansell, Jones-Hettelsater Construction Co., Kansas City.

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1. Whitehair, C. K.: Medicated Swine Feeds. North Am. Vet. (Am. J. of Vet. Sci.) 39 (No. 2) (Feb. 1958): 32.
2. McGinnis, J. et al.: Use-history of Antibiotics as Related to Their Efficacy in Promoting Growth of Turkeys. Poultry Science, in press.
3. Bird, H. R.: Coming Events in Poultry Nutrition. Hatchery & Feed, July, 1958.

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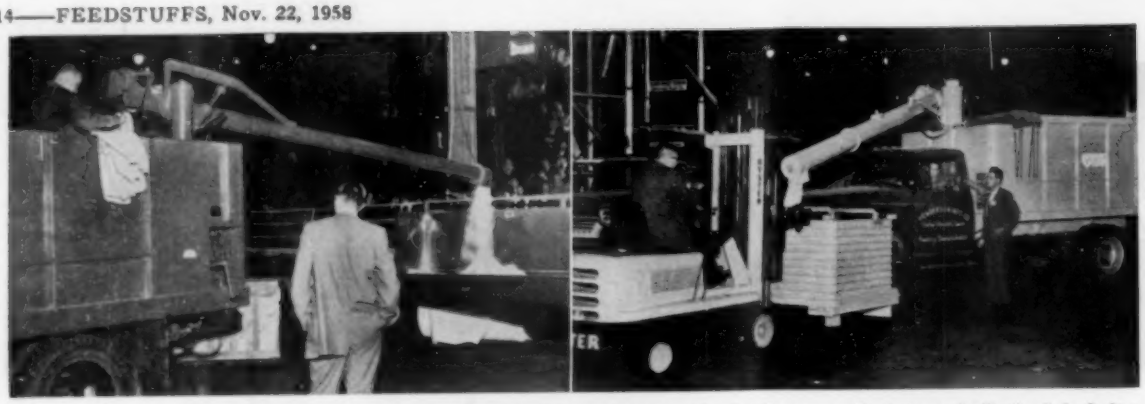

DEMONSTRATIONS—Some special demonstrations on bulk handling were a principal feature of the Feed Production School in Kansas City. Shown in the first photo is a bag-to-bulk operation, in which feed is being dumped from 100-lb. burlap bags and conveyed in bulk from the Pamco truck. In the second picture, bulk feed is being put into a portable bin moved by forklift truck. A Henderson Chief bulk truck is being used in this case to convey the feed.

of the systems in Mr. James' talk reviewed above.)

Type I System: If this replaces a sack-off operation, production costs can be (1) lower if take-away rate from mixer is greater than for sack-off and if set-up time for bulk does not offset such savings; (2) higher if set-up time results in a production loss in mixing operations; (3) higher if take-away rate from mixer is lower than for sack-off.

Bulk equipment should be engineered and operated so as to provide a faster take-away rate from mixer than on sack-off operations. Equipment should be installed so that there is a minimum of or no set-up time for bulk and a minimum of or no change-over time between bulk and sacks. Labor for sack-off, warehousing and bag loading will be saved only if these workers can be transferred to other productive activities during bulk operations. Actual costs of bags would be saved on all bulk feed. The system should be properly integrated with mixing operations.

Type II System: This system is of a more permanent nature than Type I, but most of the points emphasized with Type I apply here, too. If more than one packer bin is available for bulk loading, this system is less critical as to inducing production losses. Scheduling and timing of bulk loading are also less critical but not to the degree that these things can be ignored. The obvious advantage of this system is that it provides a means of obtaining accurate weights on straight and mixed bulk loads of feed.

Type III System: This system demonstrates the common bulk installation for large volume, either in-plant or as a bulk station. Obviously, the capital investment is greater than for Type I or Type II. The advantage of this system is that it provides greater intermediate storage between production and distribution. It should be noted that this system calls for additional mechanical handling in supplying bulk bins.

If this system is integrated with production so that bulk does not interfere with sack-off operations or if the plant is a total bulk operation, this system can be near ideal as far as finished feed storage and distribution costs are concerned. As in System I, facilities for weighing bulk must be provided. The method of doing this can offset the handling cost savings over System II.

In addition to the capital and operating economies (labor costs) with the various bulk systems, one should consider costs for such things as cleaning out to prevent contamination, cost of fines and reprocessing, and costs of stoppage of flow in bulk bins.

CAPITAL INVESTMENT REQUIREMENTS IN BULK HANDLING OF FINISHED FEEDS—Henry Heckman, Jones-Hettelsater Construction Co., Kansas City (read by F. N. Mansell of Jones-Hettelsater in the absence of Mr. Heckman): Many possibilities for bulk systems at feed plants exist, but I will outline just one hypothetical system which seems to have flexibility and is reasonably economical. It is not ideal in all respects, especially where large tonnages of bulk are handled daily in large units, but it has a good degree of acceptance. This system involves use of tote boxes for handling feeds between point of discharge from mill and some point of loading.

We will assume an existing mill producing 20 tons per hour for five 16-hour days per week, with 80 tons per day in bulk. This system is more suitable for loading trucks than cars and we will confine consideration to truck loading. The hypothetical plant is already equipped for packing, and it is possible to valve the stream ahead of the packer to a point where the boxes may be loaded. There is a warehouse where the empty and filled boxes can be stored.

Equipment necessary for this operation includes:

1. One-ton tote boxes, plywood or steel; we will start with 60 boxes, giving us 1⅛ tons per box per day.
2. A spout with an air-operated valve through which boxes are loaded.
3. A hood over the loading point and dust suction tied into an existing dust system.
4. A dormant type warehouse scale of 5,000 lb. capacity located under the loading point to weigh boxes being filled.
5. A fork truck equipped with a special mast so that the filled boxes may be tipped for emptying.
6. A hopper of at least 65 cu. ft. capacity to permit easy dumping into it of the contents of the boxes.
7. A conveyor for emptying the hopper into an elevating mechanism. A drag type seems desirable for self cleaning, and it should be of a type providing least damage to pellets.
8. An elevating mechanism, either an elevator or another drag. A drag is more desirable because of self cleaning. Often it is possible to combine conveying and elevating, using a steeply inclined drag or an "L" path flight conveyor. Hourly capacity should be at least twice the average rate at which feed is to be loaded out.
9. A turnhead and telescoping spout or flexible spout arrangement located to permit loading of whatever type of truck may be encountered.
10. A suction system to reduce dusting at the loading point.

The following figures give some idea of costs, including installation and wiring:

60 steel boxes @ $90	$ 5,400.00
Spout with air cylinder operating and piping	475.00
Hood and suction connection	75.00
Dormant scale	1,200.00
Fork truck with revolving carriage	7,600.00
Hopper	450.00
Inclined drag conveyor	3,200.00
Turnhead and spout	300.00
Suction system	2,500.00
	$21,200.00

DESIGNING THE IN-PLANT BULK HANDLING SYSTEM—Robert R. Clark II, the Quaker Oats Co., Chicago: There are generally four methods of incorporating a bulk system in a plant. These are: (1) Loading direct from mixing; (2) incorporating bulk with the packing system; (3) constructing a separate bulk handling and storage system; (4) using portable bins.

Loading Direct: Installation costs are lowest for this. There may be problems in truck loading because of schedule interruptions and orders for mixed loads.

For a batch mill, conveying should be sized to empty mixers as rapidly as possible. For a continuous system or a pellet system, conveyors should carry a minimum of 10% over capacity of the system. Install vented buckets in the elevator leg if an elevator is required. When possible, spout the mash to the "up" side of the leg and pellets and crumbles to the "down" side. In horizontal conveying, to prevent product contamination and to reduce pellet breakage, I suggest a drag-type self-cleaning conveyor or belt conveyor. Spouting should be at minimum angles of 50°.

Loading Through Packing System: This system will reduce initial expenditure but places restrictions on flexibility. Many mills with this system have built detachable spouts from the packer to the bulk conveying channel. It's wise to have an automatic trip with a pre-set counter on the packing scale. Detailed planning and scheduling are required since sacks and bulk cannot be handled simultaneously.

Independent Bulk Handling and Storage: A bulk system completely divorced from sacking operations is ideal. It combines uninterrupted mill operation with good service. The ideal installation is one with overhead bins over a truck scale. It is preferable to elevate to sufficient height to permit filling the bins by gravity using a turnhead to distribute. Whether round or square, one side of the hopper should be straight with the other sides at no less than 60° angle. Bins must be ventilated. If a truck scale is not planned, a traveling dump scale suspended below the bins may be used, although these scales present certain problems. Air also may be used to move feed from mill to bins. This eliminates most problems of contamination. Such a system may cost more, require more horsepower and create more pellet breakage. It is often helpful to have a return channel from bulk bins to the mill. Include a direct loading spout from the mill even when using bulk bins.

Portable Bins: One way to get into bulk with little initial capital investment is through use of portable bins. Little labor may be saved because of filling, handling and later dumping. Some mills supplement a bulk bin system with this method for small or special orders.

DESIGN OF A BULK FEED DISTRIBUTION SYSTEM—Marion Kloster, General Mills, Inc., Minneapolis: Bulk feed distributing systems are facilities for unloading, storing, loading and weighing feeds to be delivered to the feeder in bulk. In their simplest form, they consist of a warehouse for sacked feed, with the feed transported in sacks by truck and emptied into the feeder's bins with or without mechanical aid. Variations will include dumping of sacked feeds stored in the warehouse into bulk trucks equipped with mechanical unloading assemblies. In a more mechanized form, the system will include an under-track conveyor for unloading from cars, a bucket elevator, spouting or conveying system to overhead bins and a platform truck scale under the bins. For many stations, it is impractical to furnish a bin for each feed, so a combination of simple and more mechanized forms is used. One combination adapted to general feeding areas is the warehouse and one-ton tote bin system. The design of a system consists of definition of the problem, consideration of reasonable solutions and choice of that solution which seems most desirable.

A typical design problem might be to provide facilities for distribution of 13 different feeds in a volume of 708 tons of bulk and 46 tons of sacked feed per month, or a total of 9,000 tons per year. A combination sack warehouse and bulk bin assembly would be required. Other points to consider would include these: (a) Transport of both sacked and bulk feed by rail cars; transit time four to six days. (b) Serving a three-county area near New York City. (c) Transport from bulk warehouse to feeder's bins by captive truck, with a 10-ton load limit for trucks. (d) Based on monthly volume, six of the 13 feeds to be handled in bulk bins and the remainder with a returnable 100-lb. burlap bag bulk program from the sacked feed warehouse; each bin to hold 20 tons, slightly more than one compartment in a two-compartment, 30-ton car; a storage level of 50 tons of feed stored in sacks for the remaining seven feeds. (e) Location on trackage. (f) Provision of a 20-ton truck scale and space for maneuvering 10-ton trucks. (g) Shelters for bulk

SPEAKERS—These Feed Production School program participants were all smiles as they discussed their parts in the program. Left to right are Larry Alley, Pay Way Feed Mills, Kansas City; Richard Muther, Richard Muther & Associates, Kansas City; Hugh Kelley, Ames (Iowa) Reliable Products Co.; J. D. Johnson, General Mills, Inc., Minneapolis; Cliff James, Richard Muther & Associates, and Jack Blanke, Blair Mills & Elevator Co., Atchison, Kansas.

SPECIAL SPEAKERS—Two special features at the Feed Production School were talks by these two men. Robert C. Wornick (right), Chas. Pfizer & Co., Inc., Terre Haute, Ind., presented an illustrated talk on his trip to Russia. Kennard O. Stephens, National Grain Defense Planning Committee, USDA, Washington, told what an atomic attack could mean to food supplies and the feed and other industries. Tremendous destruction would result in areas hit by bombs and missiles. USDA is working on a food plan, and the feed industry would be very important in supplying feed for animals which would be alive and would have to be fed. Some special programs for feed mills in connection with civil defense are planned.

loading function but not for unloading.

(Mr. Kloster went on to outline three possible schemes to handle the required volume. One scheme involved having all feeds come to the distribution warehouse in 100-lb. sacks. This involved a sacked feed warehouse on tracks with an office, and an inclined conveyor with hopper to load bulk trucks. Three men would be required to operate the system. A second scheme involved a warehouse and one-ton tote bin system, with required facilities, such as equipment to unload cars and move and load the feed into tote bins, and a fork lift truck. Two men would be required to operate the system. A third system would include six overhead bins of 20 tons capacity each; other facilities would include unloading and conveying equipment, a truck scale, a sacked feed warehouse, etc. One man could operate the system.

(Total capital investments other than for land would be about $15,800 for the first scheme, $30,000 for the second and $34,600 for the third. Total annual comparable variable expense—including depreciation, labor, sack expense, lift truck expense if involved, etc.—would be $30,730 for the first scheme, $12,200 for the second and $9,910 for the third. On the basis of 9,000 tons per year, cost per ton would be $3.40, $1.36 and $1.10, respectively. Thus, in this particular case, the third scheme would be chosen, assuming the estimate of volume could be attained.)

CONTAMINATION IN BULK HANDLING OF FINISHED FEED —J. D. (Don) Johnson, General Mills, Inc., Minneapolis: Contaminated feed is feed that has been mixed with feed of another texture or of another type (such as poultry feed with dairy feed). Dangers include customer dissatisfaction, animals going off feed, deleterious effects on animals. Contamination can be eliminated by correct equipment design and rigid control.

Conveying: On spouts, there should be inspection holes and easy access for cleaning. Valves can be a source of contamination; if the stream is just diverted, a spring loaded pan valve is best. Screw conveyors present a problem, and these things are suggested: (a) Have the conveyor constructed with a heavy gauge trough and very close tolerance between flight and trough. (b) Use contour gates on outlets. (c) Use some material for clean-out between runs or take off an amount of set-back. (d) Vacuum-clean between runs. Drag chains that use a metal or wood paddle connected to a rubber flight are a good conveyor for contamination control.

A belt conveyor designed as a drag pan with sloped sides is good, but certain things should be done: (a) Install a concentrator that keeps the product an inch from the edge of the belt when fully loaded. (b) Install an idler pulley on the discharge or drive pulley that gives more than 180° wrap. Install a brush just ahead of the idler pulley.

With bucket elevators, some boots are built to the contour of the bucket path. But the only sure solution is to clean the boot between runs. Pneumatic systems are considered free from contamination.

Storage: Possible sources of contamination here are the distributing system, bins, pick-up system and weighing device. In distributing, spouts with a turnhead or a series of pan valves give the least trouble. Screw conveyors can be used if clean-out spouts are provided. Drag chains carrying the product on the bottom side are satisfactory.

With bins, points to remember are: (a) Use hopper with one or two straight sides. (b) Maintain 60° slope in hopper valleys. (c) Design inside walls to be smooth. (d) Design the gate without internal lips. Bin charts and inventory cards help to prevent contamination. Another aid is to take samples during loading. In regard to pick-up system, again it is necessary to decide among the various conveyors. In weighing, a track or truck scale presents no problems. With a hopper scale, the same consideration is given as in bin design. If an elevator is used, clean the boot.

Loading: Direct loading from a bin with a spout eliminates the contamination problem. If elevation is required, a good method is an inclined drag chain. With bucket elevators, one method of cleaning the boot is a dust collection system where the cyclone discharges into the loading spout. Upon completion of run, close dampers on all ducts except the one leading to a spout under the boot. Open a gate in the boot which will discharge material into this duct. Material is elevated and discharged into the spout loading out.

One system where the contamination problem is licked, if the loading device is taken care of, is a portable bin system.

In transportation systems, trucks and cars should be inspected and cleaned where necessary. With bulk

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QUIZ PROGRAM—A special session was provided at the Feed Production School to answer feed men's questions on bulk handling and other production problems. Deep in thought about and answering a puzzler are, left to right, Marion Kloster, General Mills, Inc., Minneapolis; M. M. Noxon, Nutrena Mills, Inc., Minneapolis; Ed Brackney, Jones-Hettelsater Construction Co., Kansas City; Cliff James, Richard Muther & Associates, Kansas City, and Bill Briggs, Spartan Grain & Mill Co., Spartanburg, S.C.

trucks, a source of contamination is a screw conveyor as a pick-up conveyor and the use of flights for elevating.

WEIGHTS, SHRINKAGE AND PELLET "FINES"—R. F. McLeod, Wirthmore Feeds, Inc., Waltham, Mass.: Two recent developments made it possible for us to improve pellet hardness. It was found that corn fermentation solubles, in addition to being a source of unidentified factors, are a good pellet binder. Also, fat was taken out of the pellet mash and applied to the outside of the pellets. Fat on the outside helped to agglomerate any remaining fines at point of application.

Quality of pellet is determined by many factors, such as composition of mash, conditioning, thickness of die, size and number of holes in die, cooling, type of scalping and handling.

Within the plant our equipment is so laid out that gravity takes care of most of vertical movement of pellets, and horizontal movement is by troughing belts.

Control of steam at the pellet mill is accomplished by use of two boilers, one being held in reserve if pressure drops below a certain point.

From the fat applicator, pellets are conveyed gently to hopper scales. They are then released onto troughing belts and conveyed to loading positions. The loading belt is fitted with a manually operated tripper so that pellets can be discharged from any point along its length. Telescoping tubes guide the pellets to the car to reduce shattering by impact.

In delivery, due to its flexibility, we have standardized on pneumatic equipment. Helping prevent fines are: (1) Use of well engineered trucks. (2) Close attention to details by driver in conveying pellets from truck to bin; use of a steady controlled air flow; loading of the airstream as heavily as possible. (3) Good receiving facilities on the farm; smooth connecting pipes and elbows; discharge end directing feed downward so that pellets will not strike walls or hard surfaces; venting of bins to prevent turbulence.

In connection with weighing, our operation at Brattleboro, Vt., might be outlined. Two five-ton hopper scales are used, pre-weighing feed into the car. One scale discharges while the other is charging, thus meeting requirements of a continuous mixing operation. Rate of discharge is two tons per minute, compared to one ton per minute mixing and charging. Thus 2½ minutes elapse between scale discharges. This is required to relocate the loading device from one car to another. Each hopper scale has a semi-automatic, mechanical printing device. A belt system conveys feed to and from hopper scales.

For loading trucks, two weighing systems are used—single hopper scales and platform scales. A hopper scale system requires additional handling, but flexibility is increased. A truck platform scale with overhead bins requires less handling, with a beneficial effect in relation to fines. Printed weight slips along with identification tags in pliofilm envelopes are sealed to compartment release control levers on bulk trucks. After completion of delivery, the envelope is inserted in a tag holder on the bin.

Control of shrinkage falls within the scope of good management, controlling visually evident losses during handling.

BULK FLOW OF DRY FEED INGREDIENTS — Paul Berg, Professional Engineer, Ft. Wayne, Ind.: A questionnaire reveals that a 2% loss of production can be blamed on improper flow; this is equivalent to one week's production.

The feed industry is paying dearly in loss of production by reason of not making good progress in solving flow problems at the source. The industry and its sources of supply must reach agreement on ingredient specifications such as moisture, particle size and other factors. Then the relationship of these factors to cost can be the key to our solution.

Industry must use sound theory in design of bins, hoppers and spouting. A solution to many problems may be found in equipment made for this purpose.

If all aspects of good flow are observed, the industry could at this time come very close to achieving perfect flow conditions on all ingredients.

(Mr. Berg discussed theory of flow; bin, hopper and spouting design; equipment to improve flow; ingredients and their characteristics; action of processing industries to improve flow characteristics of ingredients. Summarized here are some of his remarks on mechanical helpers to improve flow.)

Flow aids are of these types: Discharge enlargement, vibratory, fluidizing, distorting, anti-packing. Discharge enlargement can be accomplished by screw conveyor, drag conveyor, chain conveyor, sweep arm with chain cutter, sweep arm with screw conveyor, sweep arm with revolving shaft, or revolving disc. With screw conveyors, normally I provide the length of the outlet out of a bin equal to two to three times the width of the conveyor.

All feeders have good bin discharge characteristics.

In fluidizing, one method effective in breaking down arches is to provide probe openings in the hopper for inserting an air pipe to jet out the arch. Several types of fluidizing means are available.

Distortion of the pile is another way to break down arching, but effectiveness is dependent to some extent on type of ingredient. One system is use of rubber panels that are inflated and deflated periodically to keep the bottom of the bin in a fluid state.

Vibrations can break down arches and improve flow through spouts. Electric and pneumatic type vibrators are available. Sound waves may be used to vibrate materials.

An anti-packing device corrects the cause of flow problems. The suspended plate type is made of plates fastened to a cable suspended from top of bin, with each plate supporting a share of the ingredient.

Another method is a discharge device in which a double cone maintains the material in an unpacked state.

RETAINING BULK FEED IDENTITY—Erwin C. Wascher, Honeggers' & Co., Inc., Fairbury, Ill.: There are problems of identifying bulk feeds within the plant, in truck deliveries, in rail shipments, at the dealer level and at the feeder level.

In-Plant: Identification is accomplished in many cases by bin assignment. A diagram is made of all bins used for finished feed. In some cases a tag is attached to the bin outlet or lever controlling the outlet. Some mills have blackboard diagrams of bins and write in the kind of feed in each bin. In a mill with a complete system of indicator lights in a control room, it is possible to maintain identity by assigning code numbers or using a tag identifying the feeds through certain lights. As we proceed in automation, it may be possible to simplify the problem by having the electronic brains route the feed to proper bin and record on punched cards or magnetic tape, which can be read out at the proper time, all necessary information.

Truck Deliveries: The truck may be loaded according to the route the driver is to follow; that is, the front compartment is loaded with feed to be removed last, etc. It is helpful to have invoices numbered numerically following the same sequence. Further identification might be affixing a tag to the compartment or at the point of unloading conveyor controls.

Rail Shipments: In the case of more than one compartment in covered hopper cars, confusion may result. The compartmented hopper should be numbered numerically or have a receptacle for tag or other identification in each hopper or both. With boxcars, some mills permit shipments of two kinds of bulk feed, with a bulkhead of at least five tons of bagged feed in the center. When shipping split loads, it is a good idea to identify the brake end of the car in relation to each feed.

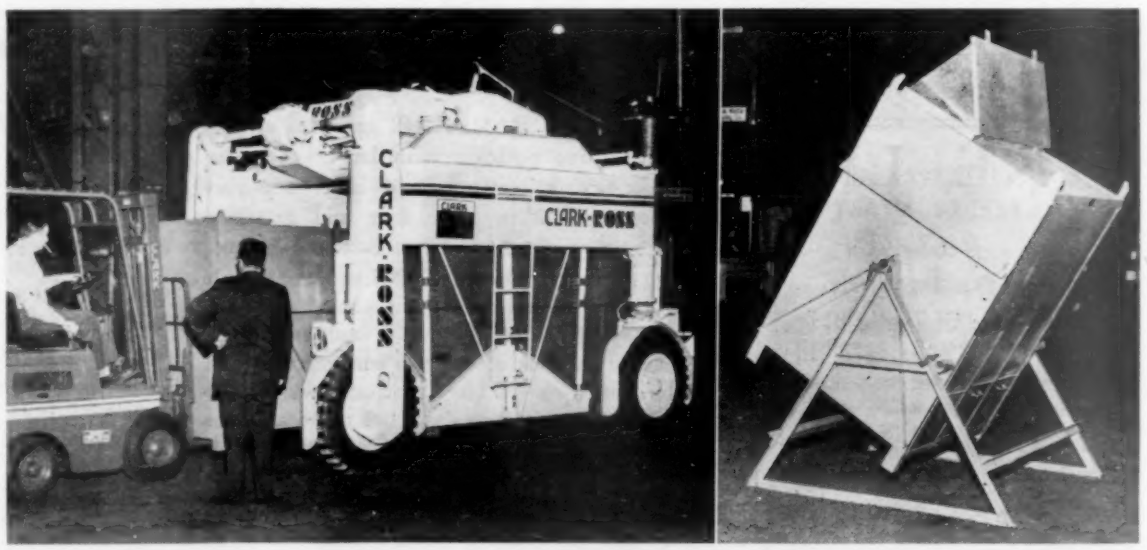
Dealer Level: The dealer, in transferring and storing bulk feed, should assume the same precautions as those used by the manufacturer. This is a fertile area for educational work by manufacturers.

Feeder Level: Proper identification is important here, too. If there are any problems, extra steps for identification should be taken.

Problems: While bulk feed has various advantages, it has a liability in this problem of maintaining identity, and serious consequences may result if proper identity is not maintained. This cannot be over-emphasized. There has been an increasing trend for feeders to attempt to hold the feed manufacturer responsible for anything that goes wrong even though management is at fault. Unhappily also, companies have attempted to establish brand identity by creating a picture of a certain kind or color or design of bags. This can no longer be considered a sound form of advertising in our business. Meanwhile, various state feed laws may in the future be enacted which will further complicate problems in bulk feed identification.

BULK HANDLING FINISHED FEEDS, TOMORROW'S SOLUTION? This was a demonstration of a bulk handling and delivery system developed by Eric Carlson, Ral-

(Turn to **BULK HANDLING,** page 82)



NEW SYSTEM—This is the straddle carrier used in a demonstration of a possible new bulk handling system. The unit would be used to deliver bulk feed, picking up, carrying and setting down one-ton bulk bins. Because the carrier also was used in Kansas City to carry a "people pod," it was not adapted for setting down and picking up bulk bins in the demonstration; hence the forklift truck in this picture. Equipment used with the carrier would make it possible to handle a larger number of bins than shown here. The carrier, it was said, could go from farm to farm, leaving filled bins and picking up empties. In the second photo, a steel bin used with the straddle carrier is resting on an "A" frame which permits the bin to be tilted. Then when the hatch is opened, the bin can be completely filled. At the farm, the bin also could be set on an "A" frame, and it could discharge into any system through slide doors on the side.

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MARYLAND BROILER TRIAL

Corn Fermentation Solubles, Tranquilizer, C/P Ratio and Protein Supplements Tested With Sexes Separated

By G. F. Combs and J. L. Nicholson
University of Maryland*

Maryland Broiler Trial S-24, involving 16 lots of 200 male Vantress x Arbor Acre crossbred chicks each, and 16 lots of 200 female Vantress x Arbor Acres crossbred chicks each, was completed on Sept. 19, 1958. Since the last sub-station trial was completed, the pens were divided in half, making 32 separate pens available. Eight different starting rations and their respective finishers were used. This study was terminated at 8 weeks of age.

The experimental outline is shown in Table 1. The actual composition of the rations used and calculated analysis are given in Tables 2 and 3, respectively. All feeds contained from 6 to 8% added fat and were fed in mash form. The starting rations contained approximately 1,050 Calories of productive energy per pound while the finishers contained approximately 1,075.

Ration series 1 through 4 consisted of starting rations with calculated C/P ratios of approximately 48 to 1 and finishing rations with calculated C/P ratios of approximately 55.3 to 1. Ration series 5 through 8 consisted of starting and finisher rations with calculated C/P ratios of 45 to 1 and 51.7 to 1, respectively. Protein assays revealed that these rations contained appreciably more protein than was calculated from usual composition values. (See Table 3.) All of the rations contained a minimum of 0.75 lb. of methionine per ton of feed. Rations numbers 1, 2, 3, 5 and 6 contained no sources of animal protein. Rations numbers 1, 2, 4, and 5 contained no supplemental sources of the "whey" or "fermentation" factors.

Ration 2 differed from ration 1 primarily in that it contained more supplemental DL-methionine (see Table 1). The glycine addition in ration series 2 was too small to be considered an important variable. Instead of adding 0.2%, only 0.2 lb. per ton or 0.01% was added by mistake. Ration No. 4 contained an intermediate level of methionine by calculation. Rations 2, 3, 5, 7 and 8 contained approximately the same amounts of sulfur amino acids.

Ration series 3 differed from ration series 2 in that 2% corn fermentation solubles was added. The same differences apply to ration series 6 and 5. Ration series 7 constitutes the positive control having the higher protein levels and both sources of "fish" and "whey" factors. Ration series 8 was comparable to 7 except that 50 grams of a tranquilizer (tetrahydrozoline) was included.

Two groups of males and two groups of females were fed each of the eight starting rations. One-half of these were changed to the respective finisher feeds at 4 weeks of age while the remaining half were changed to the finishing rations at 6 weeks of age. This was done primarily to determine whether or not differences in performance of males and females would result when changed at either four or six weeks to finisher rations of lower protein content.

Body weights and feed consumption records were taken at 4, 6 and 8 weeks. Intraocular vaccination for Newcastle disease and bronchitis was performed at 5 days of age and the birds were dusted with Newcastle vaccine at 3½ weeks of age. A mild outbreak of infectious hepatitis occurred in the males at 4 weeks of age. This was treated promptly and did not appear to interfere with the experimental results.

Ration series 4, 5 and 7 in Trial S-24 are very similar to rations 11, 14 and 6 used in Trial S-23. (Feedstuffs, Aug. 9, 1958).

RESULTS: The 8-week results for males and females are given in Table 4. The growth plane was slightly less than that obtained in Trial S-23 with similar rations, although this study was conducted during warm weather. Feed conversions on the other hand were appreciably better, again probably due to the temperature difference between the two studies.

Tranquilizer: The pens involved in the comparisons of rations with and without 50 grams of tetrahydrozoline per ton of feed are given in Table 5. The results fail to show any advantage from the use of the tranquilizer at this level during warm weather brooding. In fact, those which received the tranquilizer averaged 0.11 lb. less at 8 weeks with essentially the same feed conversion.

Time on Starter: In Table 6 the average weight or feed and gain conversion data by periods as influenced by the time of changing from starter to finisher rations are given. Although no differences were obtained at 8 weeks in feed conversion of males or females as a result of time change to the finisher feed, slightly heavier weights were obtained with males when the startér was continued until 6 weeks. On the other hand, the females which were changed to finisher rations at 4 weeks weighed numerically more on the average at eight weeks and gained more during the 4 to 6 week period than did those maintained on the starting rations until the 6th week. These results indicate that females may be changed over to lower protein rations (finisher rations) at an earlier age than males without interfering with rate of growth. This is as one would have predicted.

Corn Fermentation Solubles: In Trial S-23 the addition of 2% corn fermentation solubles No. 3 (supplied by Clinton (Iowa) Corn Processing Co.) failed to improve the performance of broilers when added to their rations in the presence of animal protein factor supplements. In this trial 2% corn fermentation solubles was

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TABLE 1. Experimental Outline (Trial S-24) Md. Agr. Exptl. Station, Salisbury, Md.

Ration series*	Description	C/P ratio—Starter	C/P ratio—Finisher†	Gm./Therm.—Meth.	Gm./Therm.—Meth. + Cystine
1	Corn-soybean meal	48:1	55.3:1	1.93	3.29
2	As 1 + 0.01% glycine‡ + add. DL-methionine¶	48:1	55.3:1	2.14	3.50
3	As 2 + 2% corn ferm. sol. No. 3	48:1	55.3:1	2.15	3.49
4	As 1 + fish meal + poultry by-products meal	48:1	55.4:1	2.02	3.41
5	Corn-soybean meal	45:1	51.7:1	2.14	3.57
6	As 5 + CFS No. 3	45:1	51.7:1	2.14	3.56
7	Pos. control (fish meal + poultry by-products meal + meat scrap + CFS No. 3)	45:1	51.7:1	2.17	3.59
8	As 7 + 50 gm. tetrahydrozoline/ton	45:1	51.7:1	2.17	3.59

*Two pens of 200 male Vantress x Arbor Acre crossbred chicks each and two pens of 200 female Vantress x Arbor Acre crossbred chicks each per ration series.
†Half of pens changed to finisher at four weeks; the other half changed at six weeks of age.
‡This level is far lower than intended and cannot be considered as an important variable.
¶All rations contained a minimum of 0.75 lb. added DL-methionine per ton.

TABLE 2. Composition of Rations (Trial S-24) (Completed Sept. 19, 1958) Md. Agr. Exptl. Station, Salisbury, Maryland

Ingredients	Starting rations (lb. per ton) S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8
Ground yellow corn	1068	1066.80	1046.80	1131	977.5	957.5	1070	1070
Stabilized fat (animal grease)	140	140	140	120	160	160	120	120
Fish meal, menhaden, 60%	...	...	...	50	...	...	50	50
Meat and bone scrap, 50%	...	...	...	...	...	...	75	75
Poultry by-products meal	...	...	...	75	...	...	75	75
Soybean meal, 50%	630	630	610	480	700	680	450	450
Corn gluten meal	50	50	50	50	50	50	50	50
Dehy. alfalfa meal, 20% (150,000 I.U. of A/lb.)	25	25	25	25	25	25	25	25
CFS No. 3*	...	...	40	...	...	40	40	40
Limestone	26	26	26	25	26	26	18	18
Dicalcium phosphate	42	42	42	28	42	42	12	12
Salt	8	8	8	6	8	8	6	6
Trace mineral mix (Tramin No. 1)†	2	2	2	2	2	2	2	2
Choline chloride, 25% mix	2	2	2	1	2	2	...	...
DL-methionine	...	1	1	...	0.5	0.5	...	...
Glycine	...	0.2	0.2	...	...	...	...	...
Special mix‡	7	7	7	7	7	7	7	7
Tranquilizer¶	...	...	...	...	...	...	...	+1
Total, lb.	2000	2000	2000	2000	2000	2000	2000	2000

Ingredients	Finishing rations (lb. per ton) F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8
Ground yellow corn	1170	1169.05	1149.05	1230	1084.75	1064.75	1176	1176
Stabilized fat	140	140	140	120	160	160	120	120
Fish meal, 60%	...	...	...	40	...	...	40	40
Meat and bone scrap, 50%	...	...	...	...	...	...	60	60
Poultry by-products meal	...	...	...	60	...	...	60	60
Soybean meal, 20% protein	490	490	470	365	555	535	340	340
Corn gluten meal	75	75	75	75	75	75	75	75
Dehy. alfalfa meal, 50% (150,000 A)	40	40	40	40	40	40	40	40
CFS No. 3*	...	...	40	...	...	40	40	40
Limestone	25	25	25	25	25	25	18	18
Dicalcium phosphate	40	40	40	28	40	40	15	15
Salt	8	8	8	6	8	8	6	6
Trace mineral conc. (Tramin No. 1)†	2	2	2	2	2	2	2	2
Choline chloride, 25% mix	3	3	3	2	3	3	1	1
DL-methionine	...	0.75	0.75	...	0.25	0.25	...	...
Glycine	...	0.2	0.2	...	...	...	...	...
Special mix‡	7	7	7	7	7	7	7	7
Tranquilizer¶	...	...	...	...	...	...	...	+1

*Corn fermentation solubles product manufactured by Clinton Corn Processing Co., Clinton, Ia.
†Supplies 60 ppm manganese, 1.2 ppm iodine, 2 ppm copper, 0.4 ppm cobalt, 25 ppm iron and 3.5 ppm zinc.
‡To supply per 7 lb.: Glycamide (100%), 54.4 gm.; BHT (100%), 0.25 lb.; choline chloride (100%), 1.25 lb.; menadione sodium bisulfite, 1 gm.; riboflavin, 4 gm.; niacin, 30 gm.; D-calcium pantothenate, 10 gm.; procaine penicillin, 4 gm.; sodium molybdate, 1 gm.; zinc oxide, 15 gm.; alpha tocopherol acetate, 1000 I.U.; DL-methionine, 0.75 lb.; vitamin B_{12}, 6 mg.; vitamin A, 3 million I.U.; vitamin D_3, 0.8 million I.C.U.; and 3-nitro, 4-hydroxy phenyl arsonic acid, 45 gm.
¶50 gm. of tetrahydrozoline per ton.

TABLE 3. Calculated Analyses (Trial S-24) Md. Agr. Expti. Station, Salisbury, Md.

	Starter Rations S-1*	S-3	S-4	S-5	S-6	S-7 & S-8
Productive energy, cal./lb.	1051	1045	1052	1048	1943	1048
Crude protein, %, calc.	21.9	21.8	22.0	23.3	23.2	23.4
Protein, % (N x 6.25)	23.3	...	23.2	24.3	...	24.3
C/P ratio (calc.)	48	48	48	45	45	45
Crude fat, %	10.7	10.7	10.7	11.6	11.5	9.5
Crude fiber, %	2.3	2.6	2.3	2.3	2.6	2.6
Calcium	1.18	1.18	1.20	1.18	1.18	1.20
Phosphorus, total, %	0.75	0.75	0.72	0.75	0.75	0.72
available, %	0.50	0.50	0.50	0.50	0.50	0.49
Riboflavin, mg./lb.	3.03	3.07	3.15	3.03	3.07	3.24
Niacin, mg./lb.	26.6	27.0	26.8	26.6	27.0	27.9
Pantothenic acid, mg./lb.	8.2	8.2	8.1	8.2	8.2	8.1
Choline, mg./lb.	834	861	824	860	887	836
Vitamin A, IU/lb.	4500	4415	4475	4500	4365	4320
Vitamin D_3, ICU/lb.	400	400	400	400	400	400
Vitamin B_{12}, mcg./lb. (added)	3	3	3	3	3	3
Arginine, %	1.20	1.18	1.22	1.29	1.27	1.29
Methionine, %	0.446	0.495	0.469	0.493	0.492	0.500
Cystine, %	0.315	0.309	0.322	0.332	0.326	0.336
Methionine and cystine, %	0.761	0.804	0.791	0.825	0.818	0.830
Lysine, %	1.057	1.035	1.087	1.15	1.13	1.15
Tryptophane, %	0.233	0.228	0.226	0.250	0.245	0.230

*S-2 and F-2 same as S-1 and F-1 plus 0.05% additional DL-methionine and 0.01% glycine, respectively.

	Finishing Rations F-1*	F-3	F-4	F-5	F-6	F-7 & F-8
Productive energy, cal./lb.	1074	1063	1074	1072	1067	1071
Protein, % (calc.)	19.5	19.4	19.4	20.7	20.6	20.6
Protein, % (N x 6.25)	20.0	...	19.9	21.0	...	21.1
C/P ratio (calc.)	55.3	55.3	55.4	51.7	51.7	51.8

TABLE 4. Results, by Pens, of Trial S-24 at 8 wks.

Ration	Finisher started	Average 8-wk./lb. Male	Female	Av.	Feed/wt. (0-8 wk.) Male	Female	Av.
1	6	3.10	2.54	2.82	1.97	2.04	2.00
	4	2.87	2.58	2.72	1.97	2.04	2.00
	Average	2.98	2.56	2.77	1.97	2.04	2.00
2	6	3.03	2.56	2.79	2.01	2.02	2.01
	4	2.97	2.62	2.80	1.92	2.03	1.98
	Average	3.00	2.59	2.80	1.96	2.03	1.99
3	6	3.11	2.56	2.84	1.98	2.03	2.00
	4	2.99	2.62	2.81	1.95	2.07	2.01
	Average	3.05	2.59	2.82	1.96	2.05	2.00
4	6	3.05	2.66	2.86	1.98	2.00	1.99
	4	3.09	2.60	2.85	1.97	1.99	1.98
	Average	3.07	2.63	2.85	1.97	2.00	1.98
Average	1-4	3.03	2.59	2.81	1.97	2.03	2.00
5	6	3.15	2.59	2.87	1.91	2.01	1.96
	4	3.00	2.63	2.82	1.94	1.87	1.90
	Average	3.07	2.61	2.84	1.93	1.94	1.93
6	6	3.13	2.58	2.85	1.98	2.00	1.99
	4	3.01	2.55	2.78	2.01	2.04	2.02
	Average	3.07	2.56	2.82	1.99	2.02	2.00
7	6	3.17	2.58	2.88	1.98	1.98	1.98
	4	3.05	2.70	2.88	1.97	2.00	1.99
	Average	3.11	2.64	2.88	1.98	1.99	1.98
8	6	3.06	2.50	2.78	1.97	2.01	1.99
	4	2.94	2.58	2.76	2.00	2.05	2.02
	Average	3.00	2.54	2.77	1.99	2.03	2.01
Average	5-8	3.06	2.59	2.82	1.97	1.99	1.98
All rations	6	3.10	2.57	2.84	1.97	2.01	1.99
	4	2.99	2.61	2.80	1.97	2.01	1.99
	Average	3.05	2.59	2.82	1.97	2.01	1.99

TABLE 5. Effect of Tranquilizer (50 gms. of Tetrahydrozoline/ton) on Broiler Performance (S-24)

	Average 8-wk. weight, lb.*			—Feed/weight (0-8 wk.)—		
	Males	Females	Av. both sexes			
Control	3.11	2.64	2.88	1.98	1.99	1.98
+ Tranquilizer	3.00	2.54	2.77	1.99	2.03	2.01
Difference	—0.11	—0.10	—0.11	+0.01	+0.04	+0.03

*Two pens of 200 male and two pens of 200 female Vantress x Arbor Acre crossbred chicks used per treatment.

TABLE 6. Effect of Sex and Time on Starter Broiler Performance (S-24)

Sex	Weeks on starter	Average weight, lb.*			Average gain, lb.	
		4 wk.	6 wk.	8 wk.	4-6 wk.	6-8 wk.
Males	6	1.23	2.05	3.10	0.83	1.05
	4	1.19	1.94	2.99	0.75	1.05
	Average	1.21	2.00	3.05	0.79	1.05
Females	6	1.03	1.70	2.57	0.68	0.87
	4	1.05	1.78	2.61	0.73	0.83
	Average	1.04	1.74	2.59	0.70	0.85
Average of both sexes	6	1.13	1.88	2.84	0.75	0.96
	4	1.12	1.86	2.80	0.74	0.94

Feed Conversion

		Feed/weight			Feed/gain	
		0-4 wk.	0-6 wk.	0-8 wk.	4-6 wk.	6-8 wk.
Males	6	1.50	1.75	1.97	2.14	2.39
	4	1.52	1.79	1.97	2.25	2.29
	Average	1.51	1.77	1.97	2.20	2.34
Females	6	1.57	1.80	2.01	2.17	2.41
	4	1.58	1.78	2.01	2.06	2.50
	Average	1.57	1.79	2.01	2.12	2.45
Average of both sexes	6	1.53	1.77	1.99	2.15	2.40
	4	1.55	1.78	1.99	2.15	2.39

*Eight pens of 200 Vantress x Arbor Acre Crossbred chicks per treatment.

added in rations not containing animal protein factor supplements.

The results are shown in Table 7. No differences in rate of growth or feed conversion resulted when the corn fermentation solubles was added to the feed.

Animal Protein Supplements: As indicated in Table 2 above, ration series 4 differs from ration series 2 essentially only in that it contains 50 lb. of fish meal and 75 lb. of poultry by-products meal per ton in place of soybean meal. Similarly, ration series 7 differed from ration series 6 in that it contained 50 lb. of fish meal, 75 lb. of poultry by-products meal and 75 lb. of meat and bone scrap (50%) per ton in the starting rations. The respective finishers also differed similarly except that slightly lower levels of animal protein supplements were used.

The results of these comparisons are given in Table 8. Again, as in Trial S-23, the addition of animal protein supplements improved the average weight at 8 weeks by approximately 0.06 lb. for mixed sexes. Feed conversion was improved on the average by only 0.01 lb. less feed required per pound of body weight at eight weeks. A comparison of the results obtained in Trials S-23 and S-24 where similar rations were used is given in Table 9. Although slightly lower body weights and better feed conversions were obtained at eight weeks in Trial S-24 as compared with S-23, the relative differences due to the dietary variables are quite consistent. It appears that the corn-soybean meal rations used are improved by the addition of animal protein supplements. The difference in average weights for the two tests amounts to +0.07 lb. with an improvement of feed conversion of —0.02 lb. This difference is not large, particularly with respect to feed conversion, and requires further studies on protein quality before one should conclude that an "unidentified factor" is involved. Further studies on protein quality are planned to determine whether or not glycine supplementation to these corn-soybean meal rations would improve the results obtained.

DISCUSSION: These results are very similar to those obtained in Trial S-23 with corn-soybean meal type rations. It appears that very excellent results can be obtained with "stretched" protein levels provided that adequate levels of essential amino acids are maintained. The actual protein levels, however, were slightly higher than those calculated.

Much of this experimental outline will be repeated in the next substation trial to further substantiate the findings. In addition, glycine will be studied as a variable and a dried whey-product (50% lactose) will be used as a source of "whey" factor.

ACKNOWLEDGEMENTS

This test was supported in part by a research grant from the Clinton (Iowa) Corn Processing Co.

The authors are indebted to the Clinton Corn Processing Co. for supplying the corn fermentation solubles (CFS No. 3); the Nopco Chemical Co., Harrison, N.J., for the special mix except for Glycamide (see Table 1); Merck & Co., Inc., Rahway, N.J., for the Glycamide; Mardel Poultry

(Turn to page 22)

TABLE 7. Effect of Corn Fermentation Sol. No. 3 in Absence of "Fish Factor" Supplement (Trial S-24)

Ration	Average 8-wk. weight, lb.*			Feed/weight (0-8 wk.)		
	Males	Females	Both			
—CFS						
S2, F2	3.00	2.59	2.80	1.96	2.03	1.99
S5, F5	3.07	2.61	2.84	1.93	1.94	1.93
Average	3.04	2.60	2.82	1.94	1.98	1.96
+CFS						
S3, F3	3.05	2.59	2.82	1.96	2.05	2.00
S6, F6	3.07	2.59	2.82	1.99	2.02	2.00
Average	3.06	2.58	2.82	1.97	2.03	2.00

*Two pens of 200 male and two pens of 200 female Vantress x Arbor Acre crossbred chicks per treatment.

TABLE 8. Effect of Animal Protein Supplements on Broiler Performance (Trial S-24)

Ration series	Average 8-wk. weight, lb.*			Feed/weight (0-8 wk.)		
	Males	Females	Both			
No animal protein supplements						
S2, F2	3.00	2.59	2.80	1.96	2.03	1.99
S6, F6	3.07	2.56	2.82	1.99	2.02	2.00
Average	3.04	2.58	2.81	1.97	2.02	1.99
Plus animal protein supplements						
S4, F4	3.07	2.63	2.85	1.97	2.00	1.98
S7, F7	3.11	2.64	2.88	1.98	1.99	1.98
Average	3.09	2.64	2.87	1.97	1.99	1.98

*Two pens of 200 male Vantress x Arbor Acre crossbred chicks per ration series.

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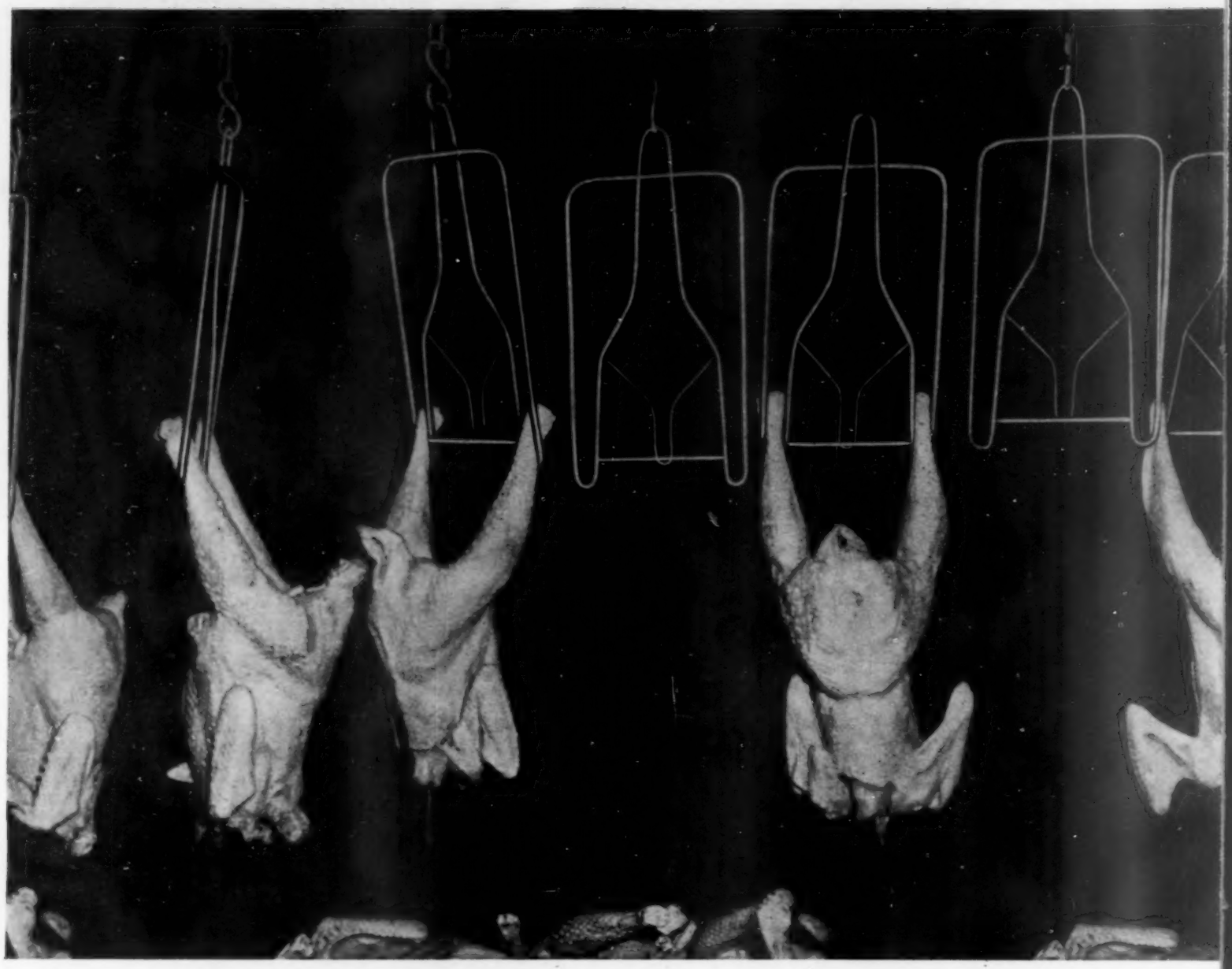

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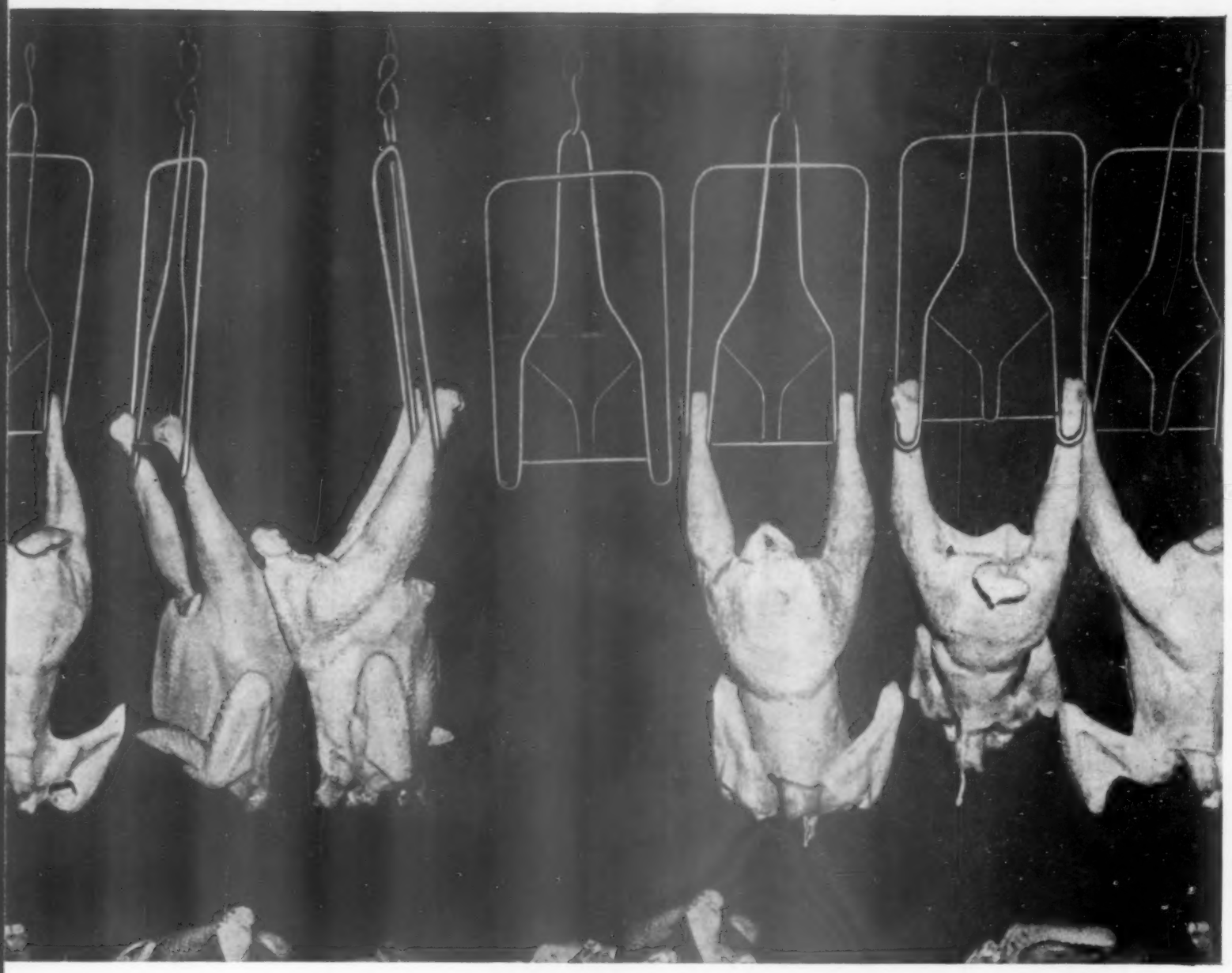

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TABLE 9. Comparison of Results Obtained in Trials S-23 and S-24 (both sexes) with Corn-Soybean and "Fish Factor" Containing Rations

Trial	—Average 8-wk. weight, lb.*— Control†	+ Meth.	Average	——Feed/weight (0-8 wk.)—— Control	+ Meth.	Average
Corn-soybean series (C/P 48, 55)						
S-23	2.94	2.97	2.96	2.11	2.07	2.09
S-24	2.77	2.80	2.79	2.00	1.99	1.99
Average	2.86	2.89	2.88	2.05	2.03	2.04
Fish factor series (C/P 48, 55)						
S-23	3.05	3.04	3.05	2.07	2.07	2.07
S-24	2.85	...	2.85	1.98	...	1.98
Average	2.95		2.95	2.02		2.02
Control "fish factor-CFS No. 3" Series (C/P 45, 52)						
S-23	...	3.07	...	...	2.07	...
S-24	...	2.88	...	...	1.98	...
Average		2.98			2.02	

*In S-23, two groups of 400 Vantress x Arbor Acre crossbred chicks (both sexes) involved per treatment except for the control, corn-soybean diet where only one group is included. In S-24, each value represents two groups of 200 males and two groups of 200 female Vantress x Arbor Acre chicks per treatment.
†Control ration contained 0.75 lb. added DL-methionine per ton.

By-Products, Inc., Salisbury, Md., for the poultry by-products meal; the American Cyanamid Co., Pearl River, N.Y., for the Newcastle and bronchitis vaccines; Chas. Pfizer & Co., for the tetrahydrozoline; and the Monsanto Chemical Co., St. Louis, for the glycine.

Higher Net Reported By McCabe in Canada

WINNIPEG — The McCabe Grain Co., Ltd., Winnipeg, has reported a net profit of $499,713 for the year ended June 30. This was 4.1% higher than profits of $480,255 reported in the previous fiscal year.

During the year the company purchased plants at St. Boniface, Man., and Moose Jaw, Sask. "It is expected that these plants will justify the opinion of the board that concentration of grain handling facilities at central points is consistent with the long term grain marketing trend," Charles Kroft, president, said in his message to shareholders.

The company has acquired, by way of diversification, a substantial interest in a "successful and growing" heavy implement distributing company in Manitoba, Mr. Kroft said. "By diversification in profitable enterprises, we hope to continue the McCabe Grain Co. as a growth company," Ben C. McCabe, chairman of the board, explained.

All officers and directors of the company were reelected. Plans were made for the retirement of the small amount of class A stock yet outstanding. The regular quarterly dividend of 25¢ a share was declared payable on Feb. 15 to stockholders of record Feb. 1, and a special dividend of 25¢ a share was voted payable at the same time.

ADDS STORAGE SPACE

PASCO, WASH.—Additional storage space for 200,000 bu. of grain has been announced by River Grain Terminals at Burbank, near here. The addition will give the firm a total of 900,000 bu. of storage space.

Minnesota Poultry, Hatchery Meeting Dates Scheduled

MINNEAPOLIS — "One of the largest and most complete exhibits of poultry equipment and supplies ever assembled at a state convention" will be on display at the Minnesota Poultry-Hatchery Exposition here Dec. 9-10, according to Leo L. Baumgartner, secretary of the Minnesota Poultry Hatchery Assn.

To be held at the Radisson Hotel in Minneapolis, the convention will feature new equipment, new methods, new labor-saving devices and other requirements for streamlining and modernizing a practical poultry house, Mr. Baumgartner said.

Also included are an educational program, a "Pullet Party" for the ladies and a special Producers' Day program.

At the educational program Dec. 9, Dr. Ben Pomeroy, College of Veterinary Medicine, University of Minnesota, will outline the practical use of today's vaccines. Dr. Elton Johnson, head of the poultry department, University of Minnesota, will discuss new feeding and management techniques for today's practical poultry raising.

Other problems to be discussed include the outlook for the Minnesota egg industry, the outlook for the small producer and the question of who sets prices for producers' eggs. Questions of special interest to hatcherymen are also scheduled for discussion. Included are: Must I have a franchise to survive? Where do I as a hatcheryman fit into the changing picture?

The "Pullet Party" will be an all-day event. Planned are tours, prizes and a luncheon.

The program for Dec. 10 is arranged especially for Minnesota's egg producers. Highlights of the program will be a panel discussion on the problems facing Minnesota egg producers, the need for production of quality-controlled eggs and a discussion of a plan for promotion of the sale and consumption of eggs.

Another feature of the exposition will be the annual meeting of the Minnesota Egg Producers Assn.

FEEDER PRICES HIGHER

RALEIGH, N.C. — The fall feeder calf sales sponsored by the North Carolina Cattlemens Assn. averaged $7.56 cwt. more than last year, according to Sam Buchanan, North Carolina livestock specialist. A total of 6,916 feeder calves sold in eight sales for an average of $29.01 cwt., he reported.

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ILLINOIS CONVENTION SPEAKERS—In the first picture Byron Lopp, authority on sales and human relations, Denver, is shown conducting a sales training clinic for delegates attending the annual convention of the Illinois Feed Assn. held jointly with the Illinois Poultry & Hatchery Federation at Springfield, Ill., Nov. 5-6. Behind Mr. Lopp are a few of the visual aids he used in his presentation. "Opportunities Unlimited" was the subject of a talk on human relations in business by Garland Benton (second picture), Southern States Grain Marketing Cooperative, Richmond, Va. James H. Burrell (third picture), business management consultant, St. Louis, addressed the Illinois feed and hatcherymen on "Human Relations in Business." The keynote address, "America, Seed Bed for Sales," was delivered by Dr. Millard G. Roberts (fourth picture), president of Parsons College at Fairfield, Iowa. Jerry Sotola (last picture), associate director, livestock bureau of Armour & Co., Chicago, made a number of predictions for the livestock industry in his address, "Where Do We Go From Here?"

Concept that Agriculture Is Dying Industry Challenged by Dean A. D. Weber of K-State

MANHATTAN, KANSAS—Granting that agriculture has many problems, Dean Arthur D. Weber of Kansas State College challenges the concept that it is a dying industry. He was the principal speaker at the Oct. 29 session of the annual Kansas extension service conference in Manhattan.

Many troublesome situations confront agriculture, and grave doubts are being expressed regarding the current status and probable future of farmers and farming. Burdensome surpluses of farm products, the minority position of farmers and of agriculture, and doubts and fears of farm people are illustrations, Dean Weber said, of the ills facing agriculture.

"As Kansans, we cannot shrug off the problems of surplus crops, because wheat, our principal crop, is labelled officially as the nation's largest and most difficult surplus crop problem. The outlook is gloomy and, to date, no prophet has appeared to lead us out of the wheat wilderness.

"The minority position of farmers and of agriculture is now an established fact, accepted by all groups, especially consumers, and even by farmers themselves. Political influence of agriculture no longer dominates the Washington scene. The hard fact is that political power is shifting away from agriculture to other groups and to other segments of our economy.

"It is becoming increasingly important," Dean Weber added, "that these other groups understand and appreciate the problems of agriculture. There was perhaps never a time when a larger gap separated the producers of food and consumers. To close this gap and thereby advance the interests of producers and consumers alike is agriculture's number one public relations problem."

Dean Weber called on the extension workers to provide the leadership which will encourage and inspire farm people to think through their own problems.

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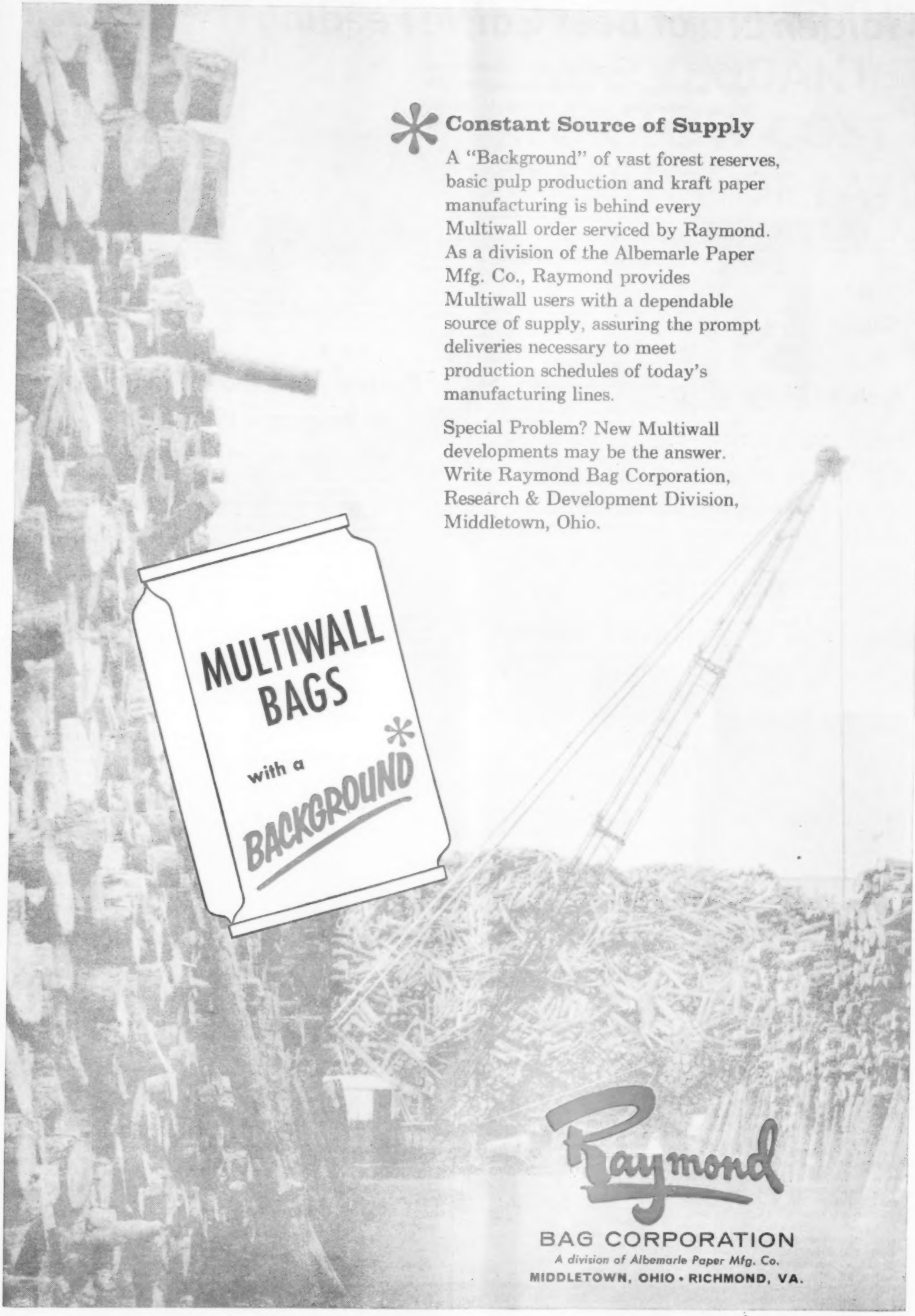

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Golden Era of Beef Cattle Feeding

"Science and technology are replacing the 'art' and 'eye' of cattle feeding. Properly supplementing cattle rations is becoming as complex as poultry and swine diets"

By Dr. W. M. Beeson
Purdue University

EDITOR'S NOTE: The accompanying article is the sixth in a series being published in Feedstuffs as part of the observance of the feed industry's "Golden Year." The 12 months following the American Feed Manufacturers Assn.'s 50th convention in May, 1958, were designated as the Golden Year, focusing attention on industry and feeding progress. In this connection, Feedstuffs is publishing a series of articles on nutritional advances and feed industry operations. This article, by Dr. W. M. Beeson, covers important advances in beef cattle feeding. Dr. Beeson discusses items of most interest to the feed industry, evaluating accomplishments to date and also taking a look at the future. A special part of the presentation, too, is data showing the practical application of nutritional progress.

A Golden Year Feature

This article is written specifically to commemorate the "Golden Anniversary" of the American Feed Manufacturers Assn. and to pay tribute to the feed industry for the very important part it has played in applying research results on nutrition to the feedlots and ranches of this country. Without the interest and help of the feed industry, discoveries of research workers would be of little practical value.

This paper will not attempt to review all of the detailed progress that has been made in the past 50 years in beef cattle feeding because excellent reviews on this subject are published in the November, 1958, issue of the Journal of Animal Science. Instead, it is more appropriate to write about those items which are of most interest to the feed industry by evaluating our nutritional accomplishments to date, looking at the future and less at the historical past.

Science and technology are replacing the "art" and "eye" of cattle feeding. Properly supplementing cattle rations is becoming as complex as poultry and swine diets. Nutritional advances in cattle nutrition progressed rather slowly until scientists started studying the bacterial flora in the rumen. This led to a new concept in ruminant nutrition showing that part of the "key" to feeding cattle was to provide the necessary nutrients for lush bacterial life in the rumen.

Dr. W. M. Beeson

AUTHOR — Dr. W. M. Beeson is in charge of nutrition research with swine, beef cattle and sheep and is assistant head of the department of animal science at Purdue University, Lafayette, Ind. He is widely known for his cattle feeding research, including the development of Purdue Supplement A. The work also has included studies of the effects of antibiotics, hormones, tranquilizers and other feed additives. Dr. Beeson is president of the American Society of Animal Production and is active in several committees and scientific societies. He was 1952 winner of the AFMA award for outstanding contribution to animal nutrition research. He received his bachelor's degree at Oklahoma A&M College and his master's degree and doctorate in animal nutrition at the University of Wisconsin.

Major Accomplishments

Some of the major research accomplishments in the field of beef cattle nutrition, feed practices, growth stimulants and disease prevention in the past 50 years are briefly stated without any attempt to give credit to the animal scientists who have made this progress possible. Only to say that this article serves to re-emphasize that research is the way to all permanent progress.

1. Rumen Factors: Basic research by rumen scientists has shown that there are certain nutrients required by rumen microorganisms for maximum cellulose (roughage) digestion. These are (1) readily available energy—primarily soluble carbohydrates such as molasses, (2) nitrogen source —preferably two thirds or more from true protein such as soybean meal and only one third from non-protein nitrogen such as urea or ammonium salts, (3) minerals—both major and minor elements, and (4) unidentified factors such as contained in high-quality alfalfa meal.

2. Rumen Synthesis: Many studies have shown rather conclusively that cattle can synthesize all of the B-complex vitamins and vitamin K. Microorganisms can also use non-protein nitrogen to synthesize the amino acids that are essential for normal growth. Therefore, quality of protein for ruminants is not a critical factor.

The only period in the life of the ruminant when adequate B-vitamins cannot be synthesized is prior to the development of the rumen in the early stages of the growth of the calf.

Supplementing the rations of cattle with the various B-vitamins such as thiamine, biotin, folic acid, nicotinic acid, pantothenic acid, pyridoxine, riboflavin and B_{12} has given negative results from the standpoint of gain, feed efficiency and digestibility of nutrients for beef cattle after the rumen has developed.

3. Protein: Numerous tests have been made to compare the comparative supplementary value of cottonseed meal, linseed meal and soybean meal for balancing cattle rations. Most of the data has indicated that these three protein supplements are equal in feeding value on a protein equivalent basis. Also, a mixture of protein supplements is not superior to any one fed singly. Observations have revealed that the feeding of linseed oil meal will improve the bloom on cattle, and for that reason this protein is used quite widely in the fitting of animals for show and where additional bloom is indicated.

Total protein requirements in the ration of cattle have been established to be 10 to 11% protein for fattening cattle and about 7.5 to 8.0% protein for wintering cattle and pregnant cows.

4. Non-Protein Nitrogen: Urea is being widely used in cattle supplements to substitute for part of the protein requirement. Research has clearly indicated that one third of the protein needs of cattle can be supplied from urea or some other non-protein nitrogen compound. This fact has led to the incorporation of 5% of urea in many cattle supplements. Also, supplements are being manufactured which contain as high as 10% urea, but these must be fed on a limited intake basis so that the steers will not receive more than .15 to .20 lb. urea per head daily. Supplements fortified with 10% urea usually contain from 45 to 50% protein equivalent. These supplements are

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Practical Application of Nutritional Progress -- 1908-1958

1908 VS. 1958 RATION

All of the nutritional advances that have been discussed are of only academic interest unless, by feedlot application, the combined knowledge results in a real saving to the cattle feeder. Discussed below are two experiments which show rather clearly the effect of applying the nutritional principles and practices that have been developed in the past 50 years.

The proof on any and all true advancements in feeding is the animal response. In order to demonstrate the value of our 1958 nutritional "know how," one set of identical twin Hereford calves was fed on a typical 1908 ration and a modern 1958 ration. Statistically speaking, data from one set of identical twin calves is equivalent to feeding 10 to 20 steers per lot. Identical twins are the result of one egg splitting so that the inherited genes or characteristics are the same.

These calves were exhibited at the AFMA convention in Chicago on May 22, 1958. These data show the living result of 50 years of progress in cattle feeding. The twin fed the 1958 ration gained 28% faster on 34% less feed.

1908 VS. 1958 RATION
Identical Twin Hereford Steers
(Fed 63 Days—Initial Wt. About 400 Lb.)

1908 Ration (Daily)

	Lb.
Shelled corn	7.8*
Linseed meal	1.6
Timothy hay	4.6*
Salt	Free choice
Total	14.0

*Shelled corn was full-fed and hay fed free choice.

1958 Ration (Pelleted)

	%
Ground ear corn	84
Molasses	5
Supplement A	11
Soybean meal	65.05
Molasses	14.00
Alfalfa (dehy.)	14.00
Bone meal	5.20
Salt + cobalt	1.70
Vit. A & D conc.	.05
Aureomycin, mg./lb.	3
Terramycin, mg./lb.	3
Hydroxyzine (Tran Q) mg./lb.	0.2

Implanted with 36 mg. stilbestrol.

Performance Data

	1908	1958
Total gain	132	170
Daily gain	2.1	2.7
Daily feed	14.0	11.8
Feed/lb. gain	6.7	4.4
Cost/lb. gain	12.7c	9.4c

MIXED SUPPLEMENT VS. SOYBEAN MEAL

For many years the standard practice in the feedlot was to feed either straight soybean meal, cottonseed meal or linseed meal to cattle. This era is steadily but surely becoming a thing of the past. Research has shown that in addition to protein, cattle need other nutrients to balance the deficiencies of the average feedlot ration. The most critical nutrients in a good cattle supplement are (1) good sources of protein—at least ⅔ of the protein content from natural plant origin, (2) alfalfa meal (dehydrated) for unidentified growth and rumen factors, (3) molasses—readily available source of energy and palatability, (4) dicalcium phosphate or bone meal to supply adequate calcium and phosphorus, (5) salt for sodium and chlorine, (6) cobalt for synthesis of vitamin B_{12}, (7) vitamin A to protect against a deficiency, especially with poor-quality roughages.

Research at Purdue (1957) has shown that a mixed supplement balanced according to the nutrients outlined above is superior to feeding soybean oil meal to balance a fattening ration for steers. These steers were self-fed on a mixture of eight parts of ground ear corn and one part of supplement. No stilbestrol or antibiotic was used in this experiment. There was a significant improvement in daily gain, lower cost of gain, higher carcass grade and dressing percent and increased profit per steer by feeding a mixed supplement. The steers fed on the mixed supplement made $32.74 more profit per head than those fed on straight soybean oil meal. The results are given below:

SOYBEAN MEAL VS. MIXED SUPPLEMENT
(213 Days on Feed)

	Soybean meal	Mixed* supplement
Daily gain, lb.	1.62	2.44
Cost feed/lb. gain, cents	18.68	17.00
Carcass grade	9 good 2 standard	9 choice 3 good
Dressing per cent, %	59	61
Selling price per lb., cents	20.5	22.5
Profit per steer over feed cost	—$9.38 (loss)	+$23.36

*No stilbestrol or antibiotic was used in this supplement.

Application of nutritional discoveries enables the cattleman to feed roughages such as corncob meal (above), corn silage and grass silage with a supplement like Purdue Supplement A which balances the nutritional deficiencies of the roughage.

adapted mostly to cattle that are on high-grain rations but are not suitable for cattle on high-roughage diets.

Recent research at Purdue has shown that cattle fed a high-urea supplement (50% crude protein) gained significantly less than steers fed on a 32% supplement and required 18% more feed per pound of gain. These cattle were on a full-feed of cornstalk silage.

A mixture of molasses, urea, phosphoric acid and ethyl alcohol has been developed which can be self-fed to cattle in a specialized feeder. Liquid supplements of various types are being developed so that nutrients can be self-fed according to the daily requirements of the animal.

5. Minerals: In the early part of this century, salt was the only mineral supplement fed to cattle. Now nearly all cattle are given free access to mineral mixtures containing calcium, phosphorus, salt and many of the trace elements.

In the thirties, many experiments were conducted to determine the calcium and phosphorus requirements of cattle. These standards are used today. Phosphorus deficiency was quite prevalent under range conditions in the western sections of this country about 25 years ago, but now the free-choice feeding of phosphorus supplements such as bone meal and dicalcium phosphate mixed with salt has practically eliminated phosphorus deficiency. Years ago bone meal was the standard phosphorus supplement for cattle. Now most manufactured feeds contain dicalcium phosphate or defluorinated phosphates because the cost of a unit of phosphorus is cheaper from these sources. Soft phosphate with colloidal clay has been shown to be an unsatisfactory supplement for cattle. Cattle fed colloidal clay exhibited pica and other symptoms of aphosphorosis. More emphasis is being placed on the fortification of cattle diets with adequate amounts of phosphorus. Rumen research has indicated that phosphorus is one of the critical elements in maintaining a high bacterial population. Phosphorus is most limiting in rations that are high in roughage and especially under range conditions.

The discovery that cobalt is essential for the synthesis of vitamin B_{12} in the ruminant has resulted in the fortification of cattle diets with ½ to 1 oz. of cobalt sulphate or carbonate per 100 lb. of salt. The occurrence of goiter in calves was identified to be caused by an iodine deficiency in the natural feedstuffs. This led to the production of stabilized iodized salt which is universally used in cattle diets, especially during the reproductive period. Iodine deficiency was most prevalent in the Great Lakes region and in the northwest section of the U.S. Now, "big neck" in calves has been eliminated through research on the iodine needs for cattle.

In certain specialized areas many other mineral elements might be deficient; namely, magnesium, manganese, copper and iron. A trace-mineralized salt has been developed for the protection of animals against minor element deficiencies for areas where feedstuffs are lacking in these elements. Almost universally cattle feeders are using trace mineralized

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salt as an insurance against trace mineral deficiencies. However, excepting for Florida and the Coastal Plains area in Texas, the only trace elements that are usually deficient in cattle diets are iodine and cobalt.

6. Vitamins A, D and E: Carotene is the natural source of pro-vitamin A for beef cattle rations. Advances have been made in the production of stabilized sources of synthetic vitamin A, and these are widely used in beef cattle supplements where cattle do not obtain sufficient amounts of vitamin A from natural feedstuffs. More recognition has been given to the need for supplementary vitamin A when cattle are being fed on old corn and low-quality roughages. It is not uncommon now to fortify supplements with synthetic sources of vitamin A so that steers will receive 10,000 I.U. per day and brood cows 30,000 to 40,000 I.U. daily.

The classical discovery that the ultraviolet rays of the sun will produce vitamin D activity in feeds and animals has made it unnecessary to fortify beef cattle supplements with vitamin D. The only exception to this is where calves might be raised indoors or under stress conditions where large amounts of vitamin D are fed to control milk fever. However, milk fever is not a problem in the beef cattle industry.

Many claims have been made for the importance of vitamin E in the reproductive processes of cattle. Although vitamin E is an essential nutrient, it is contained in large enough amounts in natural feedstuffs so that it is not necessary to fortify diets with this vitamin.

7. Alfalfa Meal: Dehydrated alfalfa meal (17% protein) contains some unknown factor and/or factors which stimulate gain and improve the utilization of feed by cattle on both growing and fattening rations. Cattle require a minimum of 0.5 lb. of alfalfa meal per head daily, and many feeders are using 1 to 3 lb. alfalfa meal or pellets to improve their cattle rations. This discovery has increased and improved the utilization of poor-quality roughages in cattle rations. No longer do we have to depend on farm-produced hay of varying quality to furnish sources of unidentified factors for ruminants. Now we can produce and furnish a standard product. Dehydrated roughages of all types will be more abundant in the future. Weather will cease to play a part in preserving roughages.

8. Hormones: Approximately 70% of the cattle today are either implanted or fed stilbestrol. Numerous research studies have shown that either the feeding or implanting of stilbestrol will improve the daily gain approximately 15% and save about 10% of the feed. Implanting of range calves with stilbestrol may become a universal practice. No discovery in the past 50 years has been accepted more rapidly by the cattle feeders than the use of diethylstilbestrol. Other research has shown that a combination of stilbestrol and certain testosterone derivatives is more effective in heifers than stilbestrol alone. Also, certain natural hormone combinations such as estradiol and progesterone have given results equivalent to the effect obtained from stilbestrol. Many new combinations of estrogens and androgens are now being tested, and no doubt we will have other ways of influencing growth in cattle. Most of these hormones are true growth stimulants, and we need to find some hormone which will also increase fat deposition.

9. Goitrogens: Certain developments have been made in the field of goitrogens, and the most recent one is Tapazole (1-methyl, 2-mercaptoimidazole). Other goitrogens, such as thiouracil, propyl-thiouracil and thiourea, have been tested in cattle rations in an effort to improve the performance and market quality. Although you can change the growth and fattening pattern of an animal by the use of these products, as yet they have not been of any practical value. To date, the only one that has shown any promise is Tapazole, and further research needs to be conducted to find out at what period in the fattening process this product would be most useful. Apparently Tapazole stimulates gains for a short period and then the effect tends to wear off.

10. Antibiotics: The adaptation and use of antibiotics in beef cattle diets have grown slowly but steadily. The screening of many antibiotics has shown that the two most effective ones at the present time are Aureomycin (chlortetracycline) and Terramycin (oxytetracycline). Under certain feeding conditions the oral feeding of 70-80 mg. of either of these broad-spectrum antibiotics will increase the daily gain (10%), improve feed efficiency (8%) and carcass quality of cattle. Antibiotics are additive in their effect over and above stilbestrol and tend to counteract the slight depression in carcass quality that is obtained by stilbestrol administration. Antibiotics are most widely used in commercial feedlots and have not been universally adopted as yet by cattle feeders. Special supplements need to be designed which contain antibiotics for cattle feeders that want to improve gain, feed efficiency and carcass quality.

Antibiotics are also used at high levels (350 to 500 mg. per head daily) to control shipping fever. Many conditioning feed supplements are now being manufactured to be fed for 7 to 21 days after cattle arrive on the farm. Although this does not entirely prevent the onset of shipping fever, it tends to reduce the severity. Also, water soluble preparations of anti-

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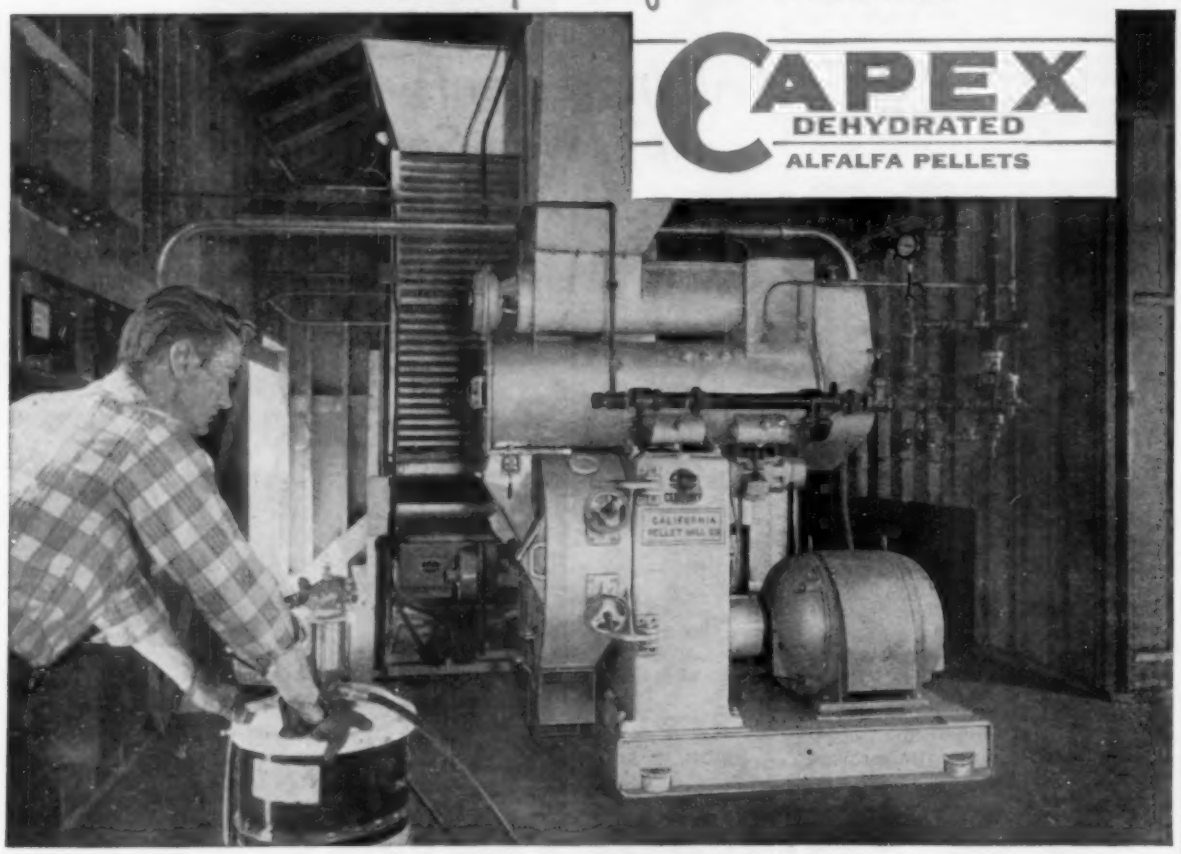

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To the Feed Industry:

Coccidiosis is a continuing problem. As the nation's leading developer and manufacturer of coccidiostats, Merck believes poultry men will best be served by full and frank reporting of all important new developments in this field.

To this end, Merck brings the message—reprinted below—to every poultry grower in your area, summing up the latest facts and findings on the coccidiosis problem.

Additional copies of the statement below (without this box) are available at your request from Merck & Co., Inc., Chemical Division, Rahway, New Jersey.

Nature keeps equalizing the odds

A timely report from Merck to the growers of broiler and replacement flocks.

IN THE FIELD OF DISEASE, man has scored many triumphs over nature. Yet disease continues—for nature keeps fighting back, steadily and subtly, to equalize the odds against her.

In human medicine, for example, new antibiotics must constantly be developed as germs develop immunity to the old ones. Flies and mosquitoes regularly show fresh resistance to DDT. And...

For some time in our own poultry industry, we have been faced with novel strains of coccidia which eventually become resistant to even the best and newest of coccidiostats.

Coccidiostats in 1958

During 1958, four new products for the prevention of coccidiosis in broiler and replacement flocks were introduced to the industry. Among these was GLYCAMIDE, from Merck.

This proud companion to Merck's highly successful S.Q. and NICARB was not released until after premarketing tests on over two million birds. The testing of GLYCAMIDE was *more extensive* than for any other coccidiostat ever made.

Feed Manufacturers' Field Tests

Initial reports of Merck scientists were confirmed by laboratory and field trials conducted by research workers associated with feed manufacturers.

All findings indicated that GLYCAMIDE was the safest coccidiostat ever developed. It caused no ill effects on hatchability, fertility, or egg quality—even when accidentally fed to birds in production. Concurrently with suppressing outbreaks of coccidiosis, GLYCAMIDE permitted *maximum weight gains* and *feed conversions* within broiler flocks.

Coccidiosis Break-throughs

During 1958, however, many growers—regardless of their coccidiostat program—experienced outbreaks of coccidiosis. A number of the affected flocks were on rations containing GLYCAMIDE.

At the same time, a number of growers using GLYCAMIDE reported *no* coccidiosis, *plus* an improved picture of final weights, feed conversions and point spreads. (The use of GLYCAMIDE has resulted so far in most favorable weight gains.)

Factors Causing Break-throughs

What caused these breaks in areas that had previously reported little or no clinical coccidiosis? Evidence to date suggests the following:

- Certain coccidial species appear to have increased in virulence.
- New, resistant strains seem to be emerging, which are not affected by the action of coccidiostats.
- The unusually wet spring and summer probably led to more breaks, and more severe breaks.
- Large-volume poultry production and relaxed flock management may have resulted in conditions conducive to unusually high levels of coccidial oocysts in the litter.

No *one* factor has yet been identified which can explain *all* the breaks—not only in different parts of the country, but even on farms in the same community.

Examples of Break-throughs

In some areas weather led to excessively moist litter conditions which favored successful sporulation of an unusually large number of oocysts...

Eimeria acervulina and *E. maxima*, coccidial species heretofore considered unimportant in broiler flocks, either became more virulent or managed to infect flocks by sheer numbers...

E. tenella and *E. necatrix*, the most destructive coccidial species, developed unexpected resistance to GLYCAMIDE and other coccidiostats, but apparently more strains are susceptible to NICARB.

NOW THAT WINTER IS HERE, coccidiosis problems can logically be expected to decrease, providing an opportunity for calm and complete evaluation of the whole coccidiosis situation and for planning future courses of action.

Your feed supplier's service representative—the man most familiar with conditions in your area—can recommend one of three programs (outlined below) to aid in the prevention or control of the disease. His advice will be based on his personal knowledge of your farm, supported by current information reaching him from his company's research teams and from Merck.

Prevention Programs

IN ADJUSTING YOUR COCCIDIOSTAT SCHEDULE, rely on the advice of your feed supplier or his serviceman with these products:

S.Q.—the most effective drug for the prevention or control of coccidiosis in turkeys. Also for controlling outbreaks in unprotected flocks—where feed intake has been lowered due to disease or stress conditions—or where break-throughs occur from uncommon species of coccidia.

NICARB—for maximum protection...tried, tested and proved in over 3 billion birds. Now widely used with broilers and with replacement pullets, where there is no problem of accidental feeding to birds in production.

GLYCAMIDE—best tolerated and highly efficient in permitting top weight gains and feed efficiency in broilers and replacements.

As stated above, your feed supplier's representative will help you decide which of these programs best suits your farm.

Science, Service and Surety

Remember...your feed manufacturer and his dealers provide services unmatched in any other branch of our agricultural economy.

Available to you, as an important part of that service, is the latest information on new findings in nutrition and on the testing of new drugs, which aid in preventing or controlling poultry diseases, including coccidiosis. This information is drawn from extensive field and laboratory experiments. Scientists of the Merck Research Laboratories are continuing to develop, for your feed manufacturer, the most up-to-date and comprehensive information from extensive laboratory experiments and field trials.

The information your feed supplier gives you is *sound*. The feeds he offers you, together with the drugs they contain, are carefully formulated and expertly blended to help your flock and your business to grow and prosper.

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biotics are being used in the drinking water for the control of shipping fever.

11. Tranquilizers: The impact of tranquilizers (ataraxic drugs) on the various phases of cattle production is still in the experimental stage. Feeding 2.5 mg. of hydroxyzine (Tran-Q) to steers along with stilbestrol and Terramycin has increased daily gain on an average 12% and improved feed efficiency 10%. This is over and above the effect of stilbestrol and Terramycin. Also, tranquilizers are being used to reduce the shock of shipping and weaning of calves. Many tranquilizers are being tested—namely, chlorpromazine, perphenazine, reserpine, Rauwolfia, meprobamate and several others — to determine their use in the life cycle of cattle production. The tranquilizer age is just beginning.

12. Other Feed Additives: Many other nutritional factors and feed additives have been tested in beef cattle rations with inconsistent or negative response. Research data reported to date has indicated that the addition of arsenicals, active dried rumen concentrates (4 billion live cells per gram), live cell yeast (20 billion live cells per gram), dried brewers yeast, fish solubles and dried molasses solubles will not improve gain, feed efficiency or digestibility of nutrients for beef cattle.

Dynafac (tetra alkylammonium stearate) has given inconsistent results. In some experiments, especially under western feeding conditions, significant stimulation has been obtained by feeding 1.0 to 2.0 gm. of this chembiotic per animal daily. Most midwestern experiments have given a negative response.

Arsenicals fed at varying levels have not improved the feedlot perpormance of cattle.

13. Pelleting: Research reports from several experiment stations have shown that the pelleting of poor grade hays and other roughages will increase the consumption by ruminants, improve the daily gain and feed efficiency. Pelleting high-energy diets has not improved the daily gain of cattle but, in some instances, has increased the feed efficiency about 14%. A recent test at Purdue has shown that the pelleting of a diet containing 70% corn cobs and 30% concentrate improved the daily gain from 1.57 to 1.98 lb., and the steers on the pelleted ration required 14% less feed per unit of gain. Similar diets containing 20-45% corn cobs showed no improvement in daily gain or feed efficiency. There is a great interest in the pelleting of all types of roughages such as sorghum silage, corn silage, etc., and many large feedlots will adapt this method for their cattle feeding operations.

Pelleting has gained in popularity in the formation of supplements for beef cattle. Cattle will usually eat pelleted feed much quicker than they will eat meal, and also it permits the simultaneous feeding of nutrients in a condensed form.

14. High-Moisture Corn: Sealed storage under oxygen (air) free conditions offer a method of preserving corn with high-moisture content (28-32% water) without loss of feeding value for cattle. High-moisture (32%) ground ear corn stored in a sealed silo (Harvestore) has 10 to 12% more feed value per unit of dry matter than low-moisture ground ear corn (15%) for fattening beef cattle. The changing mood indicates that corn will be harvested by picker shellers or picker grinders and stored in a sealed structure ready for push-button feeding. The day of picking and cribbing corn is rapidly becoming a practice of the past. Supplements will be metered on the corn as it is augered from the silo.

15. Self-Feeding: Years ago the standard method of feeding cattle was on a hand-fed basis with grain, supplement, hay and minerals. Self-feeding is becoming more popular among cattle feeders because it (1) permits the simultaneous feeding of a balanced diet, (2) allows the cattle to go on full-feed the first day, and (3) saves labor. Research at Purdue has shown that cattle can be placed on a full-feed at the beginning of the fattening period by feeding a complete mixture of eight parts of ground ear corn and one part of Supplement A. Through years of research it has been found that cattle usually go off feed because of an unbalance of nutrients and not due to an excessive intake of concentrate feed. Combining the proper ratio of concentrates to roughage as well as the essential nutrients tends to keep the rumen in the proper shape for maximum feed utilization. Self-feeding complete mixtures will increase on the farms especially since we have to include so many nutrients to balance cattle diets.

16. Free-Choice Feeding: Prior to 1954 it was thought that cattle could not be fed on a free-choice, cafeteria system. It has been shown through research at Purdue that cattle will do exceptionally well when fed free choice on ground ear corn, Supplement A, hay and minerals. The cattle eat an excessive amount of supplement which makes this practice rather uneconomical, but it does show that the excessive intake of protein supplement even at the rate of 5-7 lb. per head daily does not upset the digestive mechanism.

In order to control the supplement intake, salt has been incorporated at levels of 10-15% for free-choice feeding with corn. Under range conditions many experiments have shown that you can incorporate 25-33% of salt

(Turn to page 39)

She "packs a paunch" for profits!

Today, as a million years ago, ruminant animals have a major advantage as producers of meat and milk for human food. In their "first stomach" or rumen, cattle, sheep and goats have billions of micro-organisms at work, tearing down fiber and digesting feedstuffs to provide the animals themselves with more feed value out of a high-roughage ration.

Modern science is developing many new aids for making this ruminant digestion even more efficient, to produce more meat and milk at low cost. One is the use of PROCADIAN® Urea as a quick and economical source of protein. Another is the use of larger amounts of coarse roughage, which is digested faster and more completely by the rumen micro-organisms getting the PROCADIAN Urea source of protein in a balanced concentrate.

The high concentration of PROCADIAN Urea as a source of protein leaves room in the feed formula for all the energy, minerals, vitamins and other nutrients needed to make digestion and milk or meat production more efficient.

PROCADIAN Urea is a pure, free-flowing product that is ideal for feed formulation. It is supported by a powerful, educational advertising campaign that tells your customers to "look for urea on the tag" in buying feed. It pays to let your customers know that you are using PROCADIAN Urea in your feeds.

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FEED MIXTURE
The quick source of protein in mixed feeds

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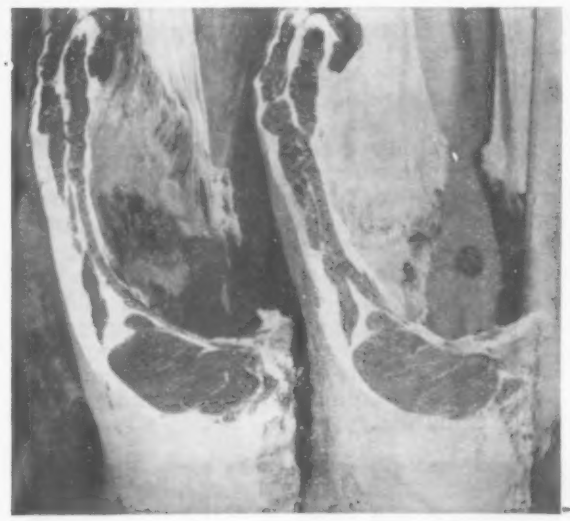
Division of International Basic Economy Corporation
1900 West 96th Street, Cleveland 2, Ohio

Lilly **REPORT TO THE FEED INDUSTRY**

34 college tests prove Stilbosol® carcass quality

Which is the Stilbosol carcass? It's purely a guess, and the long list of college experimental results shown here illustrates why. Actually, in the photograph below, the rib-eye on the right came from a Stilbosol-fed steer. The other came from a control steer fed exactly the same ration without Stilbosol.



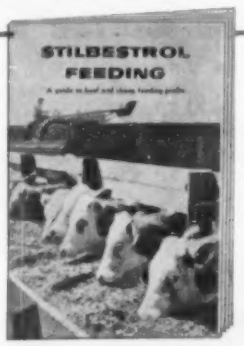
HERE'S EVIDENCE... controlled tests, carefully measured evidence... showing that when federal grade and dressing percent are scientifically compared, Stilbosol-fed carcasses measure up to accepted quality standards.

AVERAGES		6.7	6.7	60.5	60.4
		Federal Grade Value*		Dressing Percent	
Station testing	Main ration ingredient	No Stilbosol	Fed Stilbosol	No Stilbosol	Fed Stilbosol
Colo.	Corn-barley	7.0	6.9	58.8	58.6
Colo.	Corn-milo	7.7	7.4	63.2	61.8
Colo.	Corn	7.3	8.0	60.4	61.0
Fla.	Corn-citrus	8.0	7.4	61.6	61.3
Fla.	Corn-citrus	7.4	6.8	61.4	60.8
Fla.	Corn-molasses	7.2	6.2	61.4	61.3
Fla.	Corn	3.5	3.5	59.9	60.6
Ill.	Corn	8.9	8.1	64.4	63.4
Ind.	Corn	7.3	6.6	—	—
Iowa	Corn	8.0	8.4	60.7	60.8
Iowa	Corn	6.5	6.4	60.0	60.5
Iowa	Corn	7.0	7.2	58.4	58.3
Iowa	Corn	7.0	6.6	61.3	61.5
Iowa	Corn	7.0	6.4	61.8	61.2
Iowa	Corn	8.0	7.6	61.9	61.3
Iowa	Corn	7.5	7.7	59.0	59.1
Iowa	Corn	7.4	7.4	59.2	59.1
Mich.	Corn	6.7	7.4	61.9	62.0
Mich.	Corn	6.7	6.7	—	—
Minn.	Corn	7.7	7.0	59.7	59.0
Nebr.	Corn	8.8	8.6	64.0	63.2
N. C.	Corn	7.4	7.6	60.6	58.4
S. Dak.	Corn	7.1	7.4	59.7	59.7
Tenn.	Corn	2.0	3.0	—	—
Tenn.	Corn	5.0	6.0	—	—
Tenn.	Corn	6.0	7.0	56.3	55.6
Ga.	Cottonseed hulls	3.6	4.1	55.0	56.3
Iowa	Stalk silage	7.0	6.6	61.3	61.5
Okla.	Sorghum silage	6.3	6.8	60.8	60.5
Tex.	Sorghum silage	5.6	5.6	62.5	62.7
Tex. Tech.	Cottonseed hulls, loose	5.0	4.7	63.4	63.6
Tex. Tech.	Cottonseed hulls, pelleted	6.0	5.9	62.4	65.2
Va.	Grass pasture	—	—	55.0	55.5
Wyo.	Beet pulp-hay	—	—	58.7	58.5

*Grades based on following numerical values: 8—Choice; 7—Low Choice; 6—High Good; 5—Good; 4—Low Good; 3—High Standard; 2—Standard.

The factual material above is an example of the kind of data you'll find in the new booklet, "STILBESTROL FEEDING . . . a guide to beef and sheep feeding profits," now available.

Informative, pocket-sized, and up-to-date, this 20-page booklet is designed as either a handout piece or a self-mailer. Write to the address given below for the quantities you need to supply your dealers.



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U.S.I. FEED NEWS®

Vol. V ★ A SERIES FOR SCIENTISTS AND EXECUTIVES OF THE FEED MANUFACTURING INDUSTRY ★ No. 11

Methionine Improves High-Fat Poultry Feed

Addition of DL-methionine to a variety of fattening rations for poultry showed increased weight gains in recent experiments. Added methionine showed the greatest dollar value and weight gains when up to 6% fat was added to standard rations. Efficiency of feed was improved by methionine in all high-energy rations.

Choline Helps Control Mink Wet-Belly Disease

Recent mink feeding trials showed that a ration high in choline and low in fat made a marked reduction in wet-belly disease. The source of choline used in the rations also supplied vitamin E and B-vitamins. Since the vitamin-containing supplement did not completely control wet-belly, other factors must be involved. Until more information is available, severity of the disease can be reduced by using lean meat, fish and cottage cheese to reduce fat in rations, along with fortified cereal or other sources of choline such as U.S.I. Choline Chloride.

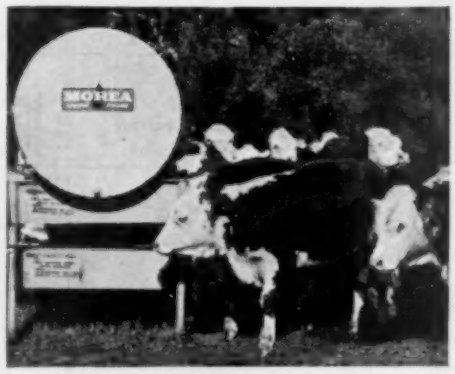
Kidney Damage Results From Choline Deficiency

Recent research with experimental animals fed choline deficient rations showed definite damage to the kidneys within 6 days. Increased lipides showed up in the kidneys within 2 days. Renal damage continued to increase after 6 days on the deficient ration. Vital importance of choline to good health in young animals is indicated.

Ethanol Is Shown to Increase Gains Made by Beef Animals on Test Rations

Source of Protein was Synthetic Nitrogen

Recent wintering and fattening studies with beef cattle showed significant weight gains for cattle fed a ration containing ethanol plus either urea or ammonia nitrogen as a source of protein, as compared to animals on a check ration without ethanol and with oilmeal as a source of protein. Rations were fed free-choice.



MOREA liquid feed is a patented product containing ethanol, urea, phosphoric acid, molasses and trace minerals. It is sold to feeders only by specified mixer-distributors. For information on sales territories, write U.S.I.

The liquid feedstuffs used contained ethanol and some of the other ingredients of the commercial, patented feed product known as MOREA® liquid feed. However, the trace minerals used in MOREA liquid feed were not included in the test rations.

Significant Gain

The increased weight gains shown by the animals getting ethanol were considered significant when examined by modern methods of statistical analysis. Comparison of the rations was based on a total of more than 11,000 animal feeding days.

Rate of gain was termed satisfactory in all lots of cattle. Sorghum silage, sorghum grain and prairie hay were used in all test rations, along with salt and limestone or salt and bonemeal.

Ethanol and Urea Best

Over the entire wintering and fattening period, average daily gains on the rations containing ethanol were better than those on identical rations without ethanol. Also, in all cases, the rations containing urea as a source of protein nitrogen gave better gains than rations containing ammonia as a source of nitrogen. The results of these studies point out again the value of the ingredients contained in MOREA liquid feed, which contains ethanol, urea, molasses, phosphoric acid and trace minerals.

Study Relationships of Vitamin E, Methionine and Selenium in Feeds

Recent experiments with lambs and chicks show that vitamin E and selenium are both useful in reducing muscular dystrophy. Tests with chicks on control of hemorrhagic disorders also show a relationship between vitamin E, methionine and selenium. Most feed grains contain adequate selenium, however, but vitamin E and methionine supplements are often essential. (See Feed News, Vol. V, No. 7.) For full information on vitamin E and Methionine, write for U.S.I. Buyers' Guide.

FEED PRODUCTS OF U.S.I.

- U.S.I. ANTIBIOTIC FEED SUPPLEMENTS (bacitracin and procaine penicillin)
- U.S.I. VITAMIN B_{12} SUPPLEMENTS
- U.S.I. MENADIONE PRODUCTS (vitamin K_3)
- U.S.I. BHT PRODUCTS
- U.S.I. CUSTOM MIXES
- U.S.I. RIBOFLAVIN PRODUCTS
- U.S.I. CHOLINE CHLORIDE (25% dry or 70% solution)
- MOREA® PREMIX
- U.S.I. CALCIUM PANTOTHENATE Products
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- U.S.I. PERMADRY (sealed-in vitamin A)
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with a supplement to control the intake. This is now a common practice where only a limited amount of supplement is required to balance the diet. Apparently excessive intakes of salt do not particularly affect the performance of cattle where they are allowed to consume the supplement at will.

17. Bloat: Many theories have been proposed for the cause of bloat, and this still remains one of the major problems when cattle are grazed on pastures that are high in legumes. Even under certain conditions bloat may occur under drylot feeding conditions, especially where they are fed on grain and alfalfa hay. Major advancements have been made in certain areas to control bloat. Feeding 75 mg. of either penicillin or Terramycin per head daily to cattle tends to reduce the amount of fermentation and gas formation in the rumen and will, in most cases, prevent bloat. Salt mixtures have been developed containing penicillin to be fed on a free-choice basis. This is a step forward in counteracting the bloat problem, but is not the complete answer. Basic research in New Zealand and also in the U.S. has shown that the feeding of oils to cattle either on pasture or in drylot will tend to prevent bloat, and methods are being developed now to include certain types of oils in the drinking water.

18. Internal and External Parasites: Some progress has been made in the control of internal and external parasites in cattle. Phenothiazine has served well in reducing the effects of worms in cattle, but as yet this is not the answer to this problem. Phenothiazine is unpalatable and difficult to introduce in cattle rations unless the taste and odor are masked. More palatable worming agents must be developed.

Grubs have been treated rather ineffectively for many years by spraying the backs of cattle with rotenone and other preparations when the larvae emerge from the hide. At this point the damage is done. This treatment would only succeed if all cattle producers would spray. Feedlot cattle are still heavily infested with grubs. Trolene may be the answer. This product, recently developed by Dow Chemical Co., can either be fed in a supplement or administered in a bolus. Trolene destroys the embryonic grub in the body if administered early in the fall.

Ticks, flies and other insects are annoying to animals and detract from their ability to convert feed into meat. Benzene hexachloride and other treatments have assisted in reducing these pests.

Former Feed Man Elected Governor

PORTALES, N. M.—A former feed and farm consultant, John Burroughs, has been elected governor of New Mexico.

Gov. Burroughs, a graduate of Texas Technological College, Lubbock, began his career as a vocational agriculture teacher and later worked for the Consumers Cotton Oil Co. as agricultural consultant.

In 1942, he went into business for himself, encouraging farmers in the Portales area to grow peanuts and offering them a market at his new processing plant, named Portales Valley Mills. He later extended his investments into other areas.

Gov. Burroughs campaigned on a platform of industrial development, pointing to his own processing mill as an example of building an industry on New Mexico's agricultural products.

FEED MILL SOLD

FALLON, NEV.—The feed mill and yard here owned by E. S. Berney & Son was sold recently. New owners are Moffat, Espy and Cooper. Under the new management, the yard will continue to handle a variety of feeds both in bulk and bag.

NOW..! LOAD or UNLOAD BULK FEED with the PAMCO BACK SAVER

Attach this inexpensive AUGER UNIT to a grain box and you can handle any feed in bulk!

- Ideal for hoist trucks
- Complete hydraulic operation
- Can load as easily as unload
- Will handle bulk feed grain or pellets
- Minimum breakage of pellets

Conversion units can be mounted on your present grain box.

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OTHER INSTALLATION POINTS: Englewood, Colo.; East Grand Forks, Minn.; Delphi, Indiana; Portland, Oregon; Jefferson, Georgia.

New field proof that nf-180® is the best way yet to control hog scours

When hog feed customers see their herd being devastated by necrotic enteritis or bloody dysentery, they need help fast. Not stop-gap help, but a treatment that really works.

You can give them that help with the new nf-180 treatment now proved effective in actual field use. Since this nf-180 use was introduced just a few months ago, hundreds of hog men have tried it with satisfaction . . . saved thousands of hogs from necro and bloody dysentery. Even where all other treatments have failed, nf-180 has done the job . . . stopped scouring, put hogs back on feed . . . straightened out runts.

Scientists credit nf-180's effectiveness to its unique ability to out-and-out kill germs...not just slow them down and provide the opportunity for resistant strains to develop, and unlike arsenic compounds, nf-180 is entirely safe.

Experienced swine raisers are proving to themselves that nf-180 is the first scours-treating feed medication that is really effective against *both* necro and bloody dysentery. It opens the way to new opportunities for you, through ready-mixed feeds and custom-mixing service. Add nf-180 to a complete ration at the rate of 300 grams furazolidone per ton. Feed this ration for 10 to 14 days.

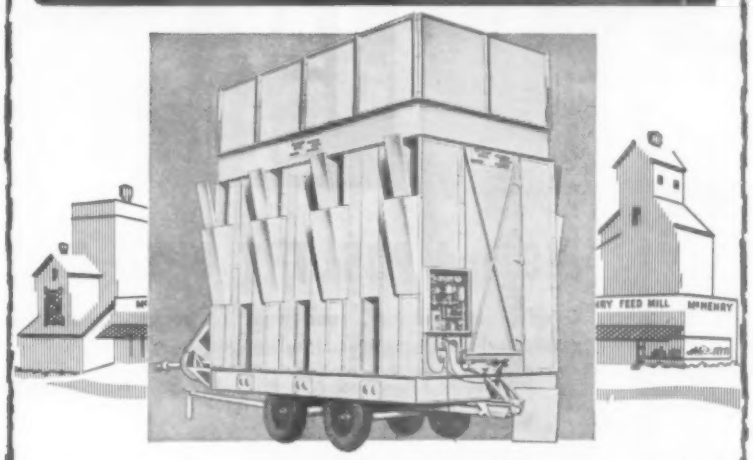
It works! Saves pigs . . . satisfies customers and brings new ones, too. Get complete details from your Hess & Clark representative or write us for the nf-180 Swine Scours Service Kit. NT-8-7

nf-180® brand of furazolidone

HESS & CLARK, Inc.
ASHLAND, OHIO

M-C GRAIN DRYER CONTINUOUS

COMPARE! There's Nothing like it ANYWHERE!



- Continuous . . . goes in wet; comes out dry.
- Completely assembled Grain Dryer.
- Portable, requires very little installation expense.
- Strong! Holds 20 tons of grain.
- Capacity up to 268 bu. per hour.
- 15 H.P. electric motor.
- LP or natural gas.
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- Can't plug, grind or crack grain.
- Dries all grains, beans and rice.
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- Serviced by National Distributing Organization.

Makes grain drying easier than ever! No batches; just simple, continuous drying. An M-C Grain Dryer at your elevator will do a better job of quality drying. Here's a grain dryer that *really* improves grain quality with no heat damage—no kernel checks or cracks. These are some of the features only available in the M-C Grain Dryer.

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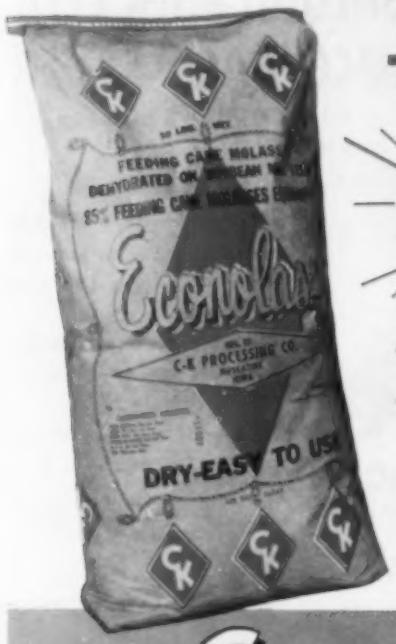

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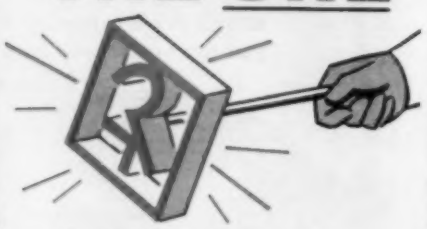

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Farm Commodity-Feed Price Ratios

	U.S.	New Eng.	Mid-Atl.	East North Cent.	West North Cent.	South Atl.	East South Cent.	West South Cent.	Mount.	Pac.
CHICKEN-FEED—										
Farm Chickens:										
October, 1958	3.5	3.1	4.2	3.8	3.3	3.8	3.9	3.8	4.1	3.2
September, 1958	3.7	3.4	4.5	3.9	3.5	3.8	3.9	3.8	4.1	3.4
October, 1957	3.8	3.4	4.7	3.9	3.6	4.2	4.2	3.7	4.3	3.3
Average (1947-56)	4.0									
Average (Oct., 1947-56)	5.4									
Broilers:										
October, 1958	3.2	3.2	4.1	3.5	3.5	3.0	3.1	3.1	4.0	3.4
September, 1958	3.3	3.4	4.3	3.6	3.6	3.1	3.3	3.2	4.0	3.6
October, 1957	3.5	3.7	4.6	3.9	3.6	4.2	4.2	3.7	4.3	3.3
TURKEY-FEED—										
October, 1958	7.1	6.8	8.2	7.5	8.6	6.6	7.3	7.1	6.8	5.8
September, 1958	6.9	6.9	8.3	7.3	8.4	6.3	6.9	7.0	6.7	5.6
October, 1957	6.6	8.3	8.9	7.0	7.7	6.2	7.1	6.5	6.2	6.4
Average (1947-56)	8.7									
Average (Oct., 1947-56)	8.7									
EGG-FEED—										
October, 1958	11.3	11.9	12.4	10.9	10.4	11.5	12.5	11.9	11.8	10.1
September, 1958	11.9	12.6	13.4	11.3	11.8	11.4	11.6	11.5	12.6	11.2
October, 1957	12.8	13.7	14.6	12.9	12.3	12.9	13.0	12.4	12.8	10.6
Average (1947-56)	11.2									
Average (Oct., 1947-56)	12.6									

	U.S.	North Atl.	East North Cent.	West North Cent.	South Atl.	South Cent.	West
MILK-FEED—							
October, 1958	1.54	1.53	1.44	1.64	1.63	1.68	1.50
September, 1958	1.46	1.46	1.35	1.55	1.53	1.53	1.44
October, 1957	1.54	1.58	1.46	1.57	1.66	1.60	1.46
Average (1947-56)	1.26						
Average (Oct., 1947-56)	1.38						
BUTTERFAT-FEED—							
October, 1958	24.3	...	20.0	27.3	...	17.3	19.6
September, 1958	23.7	...	19.5	26.6	...	16.2	19.4
October, 1957	23.7	...	19.9	25.7	...	15.9	18.9
Average (1947-56)	21.9						
Average (Oct., 1947-56)	22.4						

	U.S.	North Cent.
HOG-CORN—		
October, 1958	17.8	18.1
September, 1958	17.7	18.3
October, 1957	16.0	16.6
Average (1947-56)	13.2	13.5
Average (Oct., 1947-56)	13.9	14.2

NOTE: Ratios computed at mid-month by U.S. Department of Agriculture. Ratios represent number of pounds of poultry feed equal in value to 1 lb. live farm chicken, turkey or 1 doz. eggs; pounds broiler growing mash equal to 1 lb. broiler; pounds concentrate rations equal to 1 lb. milk or butterfat; bushels of corn equal to 100 lb. hog. Increases in ratios are favorable to the feeder.

KEY TO GEOGRAPHICAL DIVISION

Here is a guide to the states included in the geographical divisions listed in the accompanying commodity-feed price ratios:

New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut.

Mid-Atlantic: New York, New Jersey, Pennsylvania.

North Atlantic: New England and Mid-Atlantic states combined.

East North Central: Ohio, Indiana, Illinois, Michigan, Wisconsin.

West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

North Central: Combination of the two foregoing.

South Atlantic: Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.

East South Central: Kentucky, Tennessee, Alabama, Mississippi.

West South Central: Arkansas, Louisiana, Oklahoma, Texas.

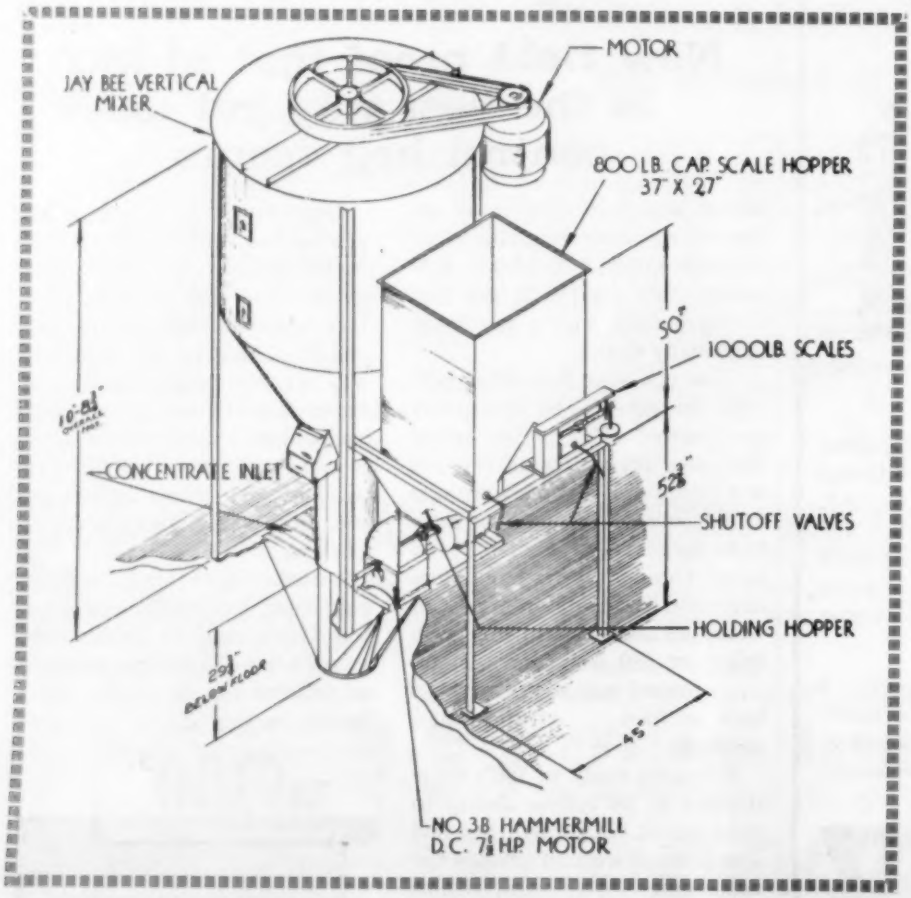
Pacific: Washington, Oregon, California.

Mountain: Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Montana.

West: Combination of the two above.

South Central: Combination of the two above.

Hog and Poultry Growers . . . *make your own formula feeds with the* JAY BEE



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Simple, economical, one-man operation—controlled quality—high capacity—low horsepower.

Specially designed 7½ H.P. Jay Bee Hammermill.

Weight Hopper and Scales.

Vertical Mixer in three sizes:
1 ton, with 5 H.P. motor
1½ ton, with 7½ H.P. motor
2 ton, with 10 H.P. motor

Requires only 6' x 10' space. Will produce up to 22 tons per day. Precision, all-steel construction—runs with minimum of dust and noise—all parts easily accessible.

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Please send me all information on your "Pig & Poultry Feed Unit."

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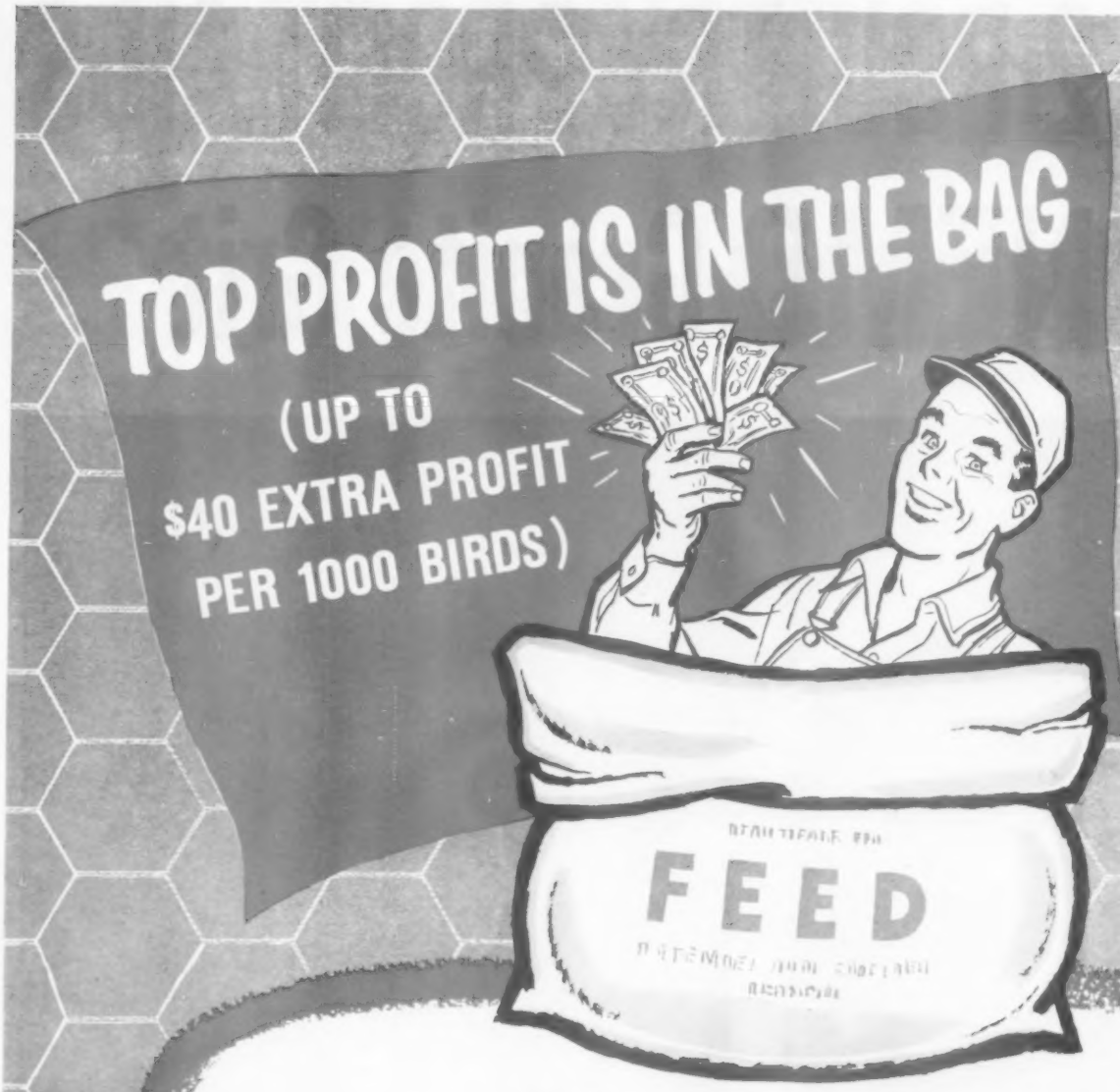

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Small wonder TRITHIADOL, Sterwin's superior, "use-proved" coccidiostat, gives top profits to broiler growers. For with TRITHIADOL, *control* goes hand in hand with *feed conversion*.

TRITHIADOL is the *only* coccidiostat that effectively controls *all* important species of coccidia while giving top feed conversion.

DOLLAR AND CENTS proof of this exclusive "double-feature" is reflected in the extra profits (up to $40 per 1000 birds) registered by TRITHIADOL in comparative tests with other leading coccidiostats.

Tested and proved in laboratory and field tests . . . TRITHIADOL pays off where you want it to . . . in *commercial use*. Sterwin's TRITHIADOL is "use-proved" in every poultry growing area, in every growing season . . . under widely varying growing conditions.

IN REPLACEMENT CHICKENS—TRITHIADOL controls *all* commercially important species of coccidia . . . allows development of *early immunity* which continues into laying period.

SEE YOUR STERWIN TECHNICALLY-TRAINED REPRESENTATIVE or write . . . wire or phone collect to:

ONLY TRITHIADOL HAS ALL 9 OF THESE MAJOR ADVANTAGES

1. Effectively controls all economically important species of coccidia.
2. Completely safe for poultry; harmless to other warm blooded animals.
3. Superior feed conversion and weight gain.
4. Permits immunity to develop early.
5. Displays no adverse effects on egg production, shell or interior quality.
6. Comparatively no effect on hatchability or fertility.
7. Is compatible with all commonly used feed ingredients.
8. Stable, free flowing, easily blended with feeds.
9. Effectively reduces tapeworm and large roundworm burden—a substantial aid in any worm control program.

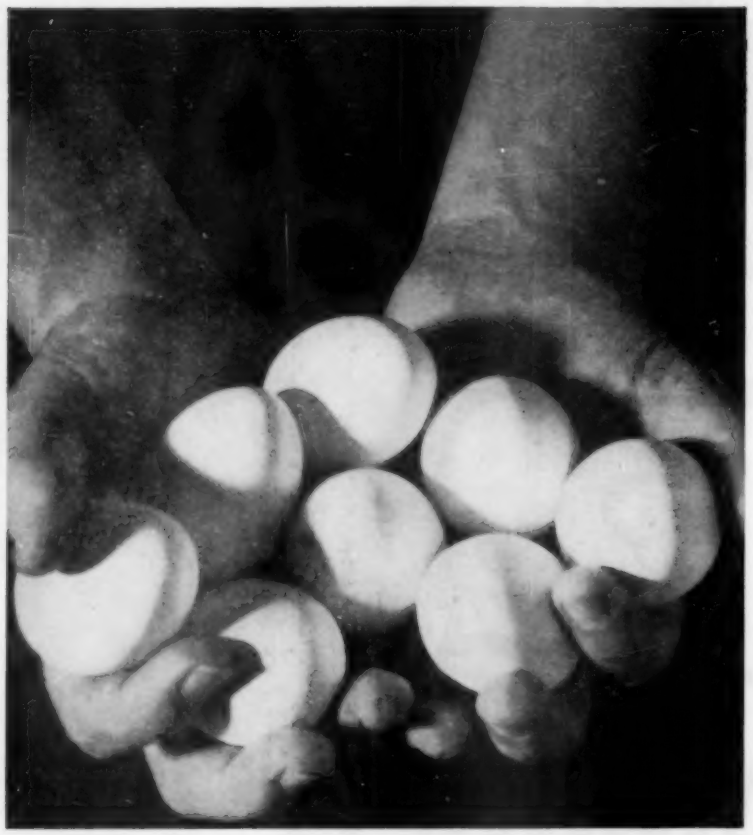
STOCKS AVAILABLE FOR IMMEDIATE DELIVERY

Sterwin Chemicals INC.
Subsidiary of Sterling Drug Inc
1450 Broadway, New York 18, N. Y.
LAckawanna 4-6400

U. S. Pat. Nos. 2,836,539 & 2,844,509

2 POULTRY PROFIT AIDS

STONEMO Granite Grit



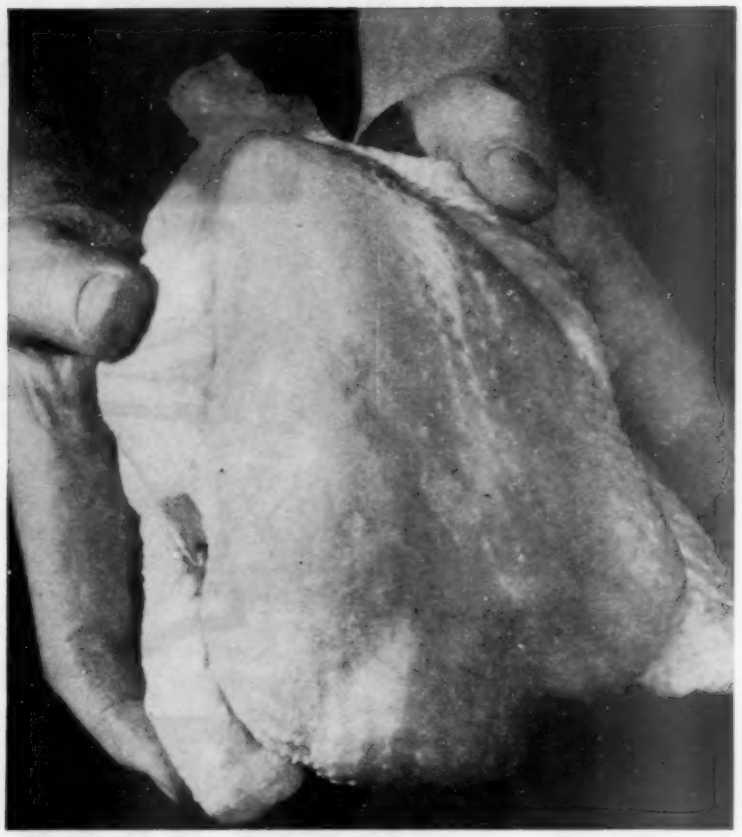
SELL GIZZARD GRINDING
and More Eggs from Your Feed

For extra eggs, your customers' birds need gizzard teeth that are hard, sharp-cutting, quick-grinding, and the proper size. Stonemo hard granite grit is scientifically processed to give your birds *extra grinding surfaces.*

With each contraction of the gizzard, Stonemo Granite Grit rips open the tough hard film which encases the various nutrients of the finest mash. Stonemo also grinds fine the coarse scratch grains, making them more digestible, better used to produce more eggs.

In the latest work of Iowa State College, up to 10% more eggs were produced from the same feed when Stonemo was offered free choice, and with better feed conversion.

So, sell the importance of gizzard grinding with every lot of feed. Sell the right size Stonemo and watch your customers' poultry profits grow.

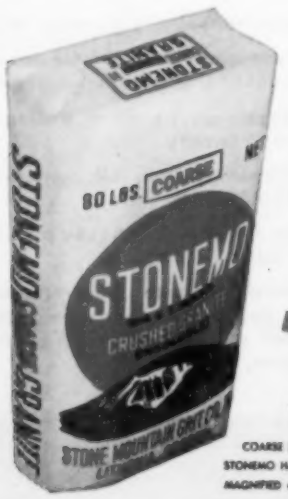


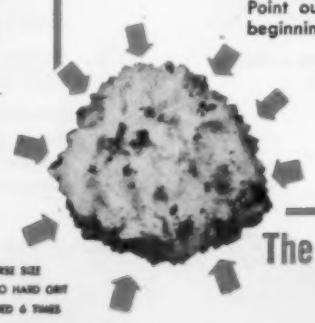
SELL GIZZARD GRINDING
and Extra Meat from Your Feed

If you have broiler customers who are having a hard time making a profit, here is a tip you and they will appreciate. In a series of feeding tests at our research farm, even when an all-mash diet was used, broilers were heavier, feed conversion was better, profits increased nearly ½ cent per pound against no grit—$16.85 per thousand birds.

Sell Gizzard Grinding, and your customers will find:

- **Birds will rid their gizzards of litter, fiber and feathers—make room for more meat-producing feed.**
- **Less feed will be used to produce a pound of meat, even on an all-mash feeding program.**
- **Birds get to market quicker—your customers start the next lot of broilers earlier—save time and money.**





COARSE SIZE STONEMO HARD GRIT MAGNIFIED 6 TIMES

Make STONEMO your Assistant Salesman

Whenever you sell feed for pullets or broilers, sell Stonemo with it, and make feed do a better job. Point out how changing to larger size Stonemo—Medium beginning the fourth week, Coarse beginning the seventh week—will increase feed efficiency and step up profits.

For further research facts about Stonemo, proper feeding directions, and sales aids including posters, newspaper mats, radio scripts, and the popular hit record "Sing Chicken Sing," write:

STONE MOUNTAIN GRIT COMPANY, INC.
Lithonia, Georgia

The Grit with the "EXTRA GRINDING SURFACES"

FROM ONE DEPENDABLE SOURCE

Sta-Kleen Nesting Material

SELL Sta-Kleen

Sta-Kleen Nesting Material is a natural to sell. Clean nests are so badly needed by poultrymen that Sta-Kleen almost sells itself.

Think of being able to tell your customers they can reduce the number of dirty eggs up to 80%.

Think of the sales appeal to a farmer's wife when you say that Sta-Kleen saves the chore of washing or cleaning eggs.

Think of selling the extra profit angle of marketing top-quality eggs—eggs with the bloom still on the shells.

But that's not all. You can also sell less egg breakage, less cracked shells, less unmarketable eggs, for Sta-Kleen is soft, resilient, and cushions the eggs.

Just as important as the right egg-laying environment is Sta-Kleen's remarkable ability to repel dirt and absorb moisture. Droppings are quickly dehydrated and easily removed from the nests.

What are Sta-Kleen's Advantages to You as a Dealer?

There are four big reasons for you to stock and sell Sta-Kleen. All four can increase your profits.

1. **Sta-Kleen sales give you a good margin of profit.**
2. **Sta-Kleen is a repeat item that constantly builds your business.**
3. **Sta-Kleen is nationally advertised to help you build volume fast.**
4. **Sta-Kleen is display packaged in 50 lb. multiwall bags. It's easy to buy right along with your Stonemo Granite Grit.**

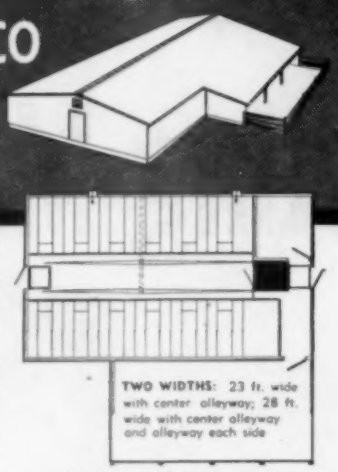
So, order Sta-Kleen today from your supplier of Stonemo Granite Grit. Write direct for folders, posters, newspaper mats.

STONE MOUNTAIN GRIT COMPANY, INC.
Lithonia, Georgia

Sta-Kleen ...another fine product to increase poultry profits

Lowest Cost Per Pig!

NEW PERMCO FARO-GRO UNITS



Now you can offer hog raisers a really low-cost method of modernizing their facilities to produce more pigs at lower cost and with less labor.

Farrowing stalls can be converted to growing pens and back again for five litters a year, resulting in lowest building investment per pig.

Sturdy Permco construction . . . effective insulation . . . positive ventilation . . . efficient sanitation facilities. Wide range of sizes available.

Rush letter for complete information—
finishing buildings also available

PERMCO MFG. CO.
Peru, Nebraska

Alabama Survey Shows Changing Farming Pattern

AUBURN, ALA.—A survey of 1,255 Alabama farms shows that farms in the state are increasing in size, old operations are being expanded and farmers are searching for new sources of income.

The Alabama Polytechnic Institute Agricultural Extension Service survey of farms in 66 counties covered families participating in the extension's Farm and Home Development program. These families are given individual help by extension service personnel in planning farm and home operations. Record-keeping is a part of the FHD activities, and these records formed the basis of the study.

According to Sam Doughty, who heads FHD work for the extension service, "The study revealed that 45% of the 1,255 FHD families have either bought or rented more land than they had when they joined FHD, or they want to buy or rent more land. Actually, of this 45%, 116 families, or 9%, have purchased more land, 23% have rented more land and the remaining 13% are still trying to expand their acreage."

Mr. Doughty explained that most families came into FHD in 1955 or 1956. "Thus the 45% figure is very significant because in just a few short years almost half of the FHD families decided they needed more land," he said.

"Some of these same families, as well as others who have not added more land, are making drastic changes in operations. For example, 470 families, more than a third of those surveyed, are shifting from dairying to beef or vice versa, adding laying flocks or hogs, reducing broiler operations in order to work off the farm, or in some other way are reorganizing to get more efficiency in their programs and to produce greater volume of crops and livestock."

New Enterprises

He went on to say that over 500 families have started new enterprises since enrolliing in FHD, and that 285 of the families dropped enterprises from which whey were receiving little or no profit.

Since joining FHD, 64% of the families have expanded or intensified enterprises they were operating when they joined. They added more hogs, increased production in their dairy herds, planted additional pine seedlings to improve their woodlands, and built more broiler houses. Practices that save time, labor and money were established on 800 of the farms.

Better farm operations brought money for home improvements. The survey showed that 114 families, 9% of the 1,255, installed running water since beginning FHD work. Almost 160 put in bathrooms, 94 installed heating, 352 improved kitchens, 348 remodeled their entire homes and 95 built new homes. Practically every family made some home improvement; most carried out several projects.

Mr. Doughty mentioned that the changes taking place on FHD farms are occurring generally on most other farms in the state, but added that the changes probably are more rapid on FHD farms.

You Can Always Count on...
Easy Sales
Fast Turnovers
Good Profits With
PILOT BRAND OYSTER SHELL

PURE CRUSHED
TRIPLE SCREENED
OYSTER SHELL
PILOT BRAND OYSTER SHELL
FOR POULTRY
Oyster Shell Products Co.
MOBILE, ALABAMA

This ideal eggshell material is first choice of poultry raisers everywhere. Your customers know they can always depend on PILOT BRAND to help them get the most eggs with the strongest shells.

That's why feed dealers who stock and push PILOT BRAND can be sure of a steady, month-in-month-out business.

Cash in on this big demand. Concentrate on PILOT BRAND—the largest selling eggshell material in the world.

Order from your distributor . . . or write to us.

FOR POULTRY
PILOT BRAND OYSTER SHELL

Oyster Shell Products Company
Mobile, Alabama

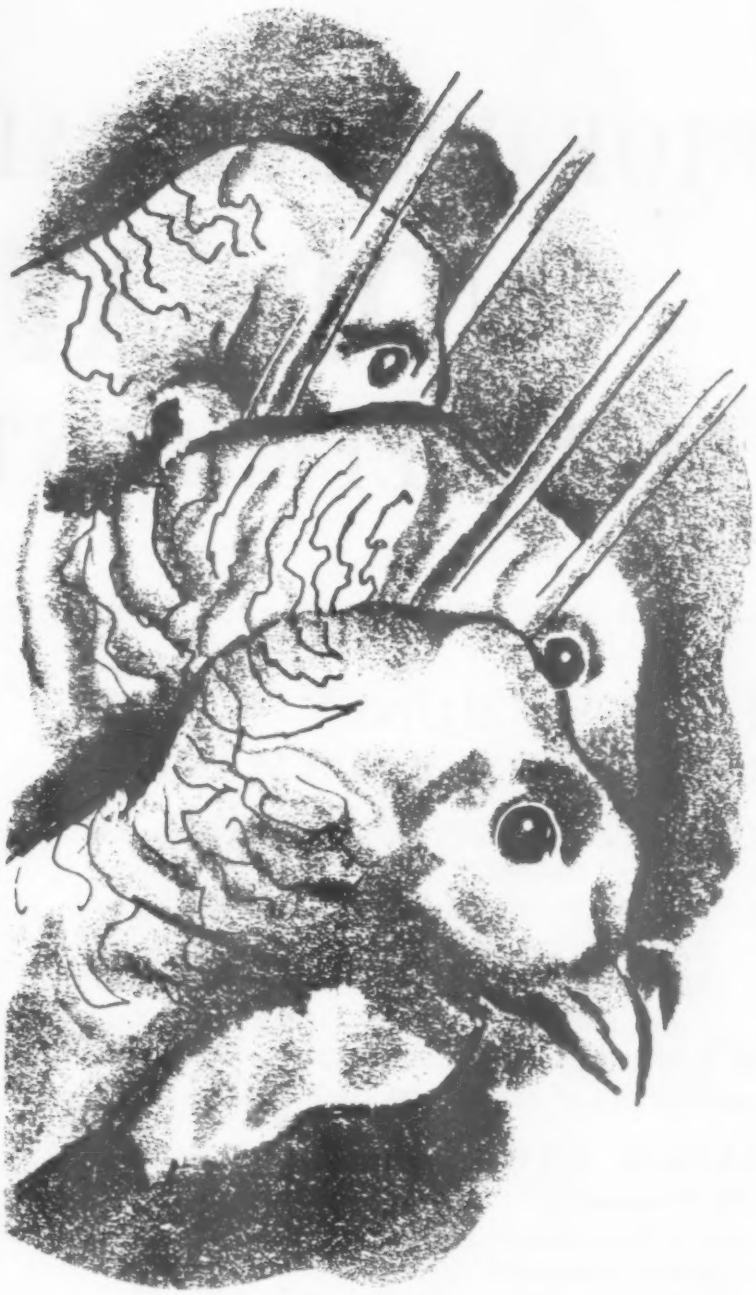
Fleischmann's F·I·D·Y
IRRADIATED DRY YEAST
RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

HONEGGER DEALERS PROFIT from the BIG FRANCHISE

BIG 4

Franchises available in some areas
WRITE, WIRE or PHONE
Honeggers' & Co., Inc.
Fairbury, Illinois

FEED
CHIX
FARM BUILDINGS
EQUIPMENT



2 ways to prevent disease and build turkey feed tonnage

DR. SALSBURY'S

1 POLYSTAT® Multi-Chemical, Broad Spectrum Feed Medicant

With POLYSTAT in your starter feeds, you help growers get faster gains on less feed per pound of live weight. POLYSTAT also gives your feed disease-fighting qualities that aid in the prevention of... COCCIDIOSIS! LARGE ROUNDWORMS! TAPEWORMS! HEXAMITIASIS! SUB-CLINICAL DISEASES!

In addition, POLYSTAT promotes sound development, improved coloring and increased market values.

DR. SALSBURY'S

2 HISTOSTAT® Prevents Blackhead . . . Promotes Better Finish

When turkeys go on range, recommend feed containing HISTOSTAT to prevent significant losses from Blackhead. Proven by thousands of growers on millions of turkeys, HISTOSTAT is safe — causes no setbacks; palatable — turkeys like it; economical — two birds saved more than pays for treating 100 with HISTOSTAT... and they finish out better with fewer throw-outs.

INCREASE YOUR TURKEY FEED TONNAGE! Recommend this proven 2-step turkey feeding program. Write Dr. Salsbury's Laboratories for all the facts about POLYSTAT and HISTOSTAT. Your inquiries are given prompt attention.

Feed Products Division
DR. SALSBURY'S LABORATORIES
Charles City, Iowa

Dr. SALSBURY'S

nation-wide service to the turkey industry

SUPERIOR BIOLOGICAL NOPCAY® CONFIRMED BY INDEPENDENT

YOU GET MORE FOR YOUR MONEY WITH NOPCO'S NEW MICRATIZED® VITAMIN A

From the feeder's point of view the real test of a vitamin A product is its effectiveness in the digestive tract. The most common method of demonstrating the degree of this is to feed high levels of vitamin A and measure liver storage. It has the advantage of giving conclusive evidence of such factors as digestibility, availability and utilization.

Independent research laboratories confirm the superior biological effectiveness of Nopcay Type V. Published herewith are results of studies by two such laboratories—Lime Crest Research Laboratory, Newton, N.J., and a West Coast research laboratory. Incidentally, their widely separated locations also provide data on the effect of climate and environment.

LIME CREST RESEARCH LABORATORY

Experimental Procedure

One-day-old male chicks of the Nichols strain of New Hampshires were randomly distributed into duplicate lots. Control lots were fed a basal diet which was devoid of vitamin A or its precursors. Other lots received 4800 USP units of vitamin A from Nopcay Type V, dry product "X", fish liver oil, and alfalfa meal.

RESULTS: Liver Storage of Vitamin A (5-week-old chicks)

PRODUCT	VitaminA Added (USP units/ lb. of diet)	Vitamin A Ingested at End of 5 Weeks (USP units)	Liver Storage –Vitamin A Activity– (USP units)	Vitamin A Stored Compared to Amount Ingested (%)
Nopcay Type V	4800	12,653	4613	36.5
Dry product "X"	4800	12,648	3193	25.2
Fish liver oil	4800	12,350	3444	27.9
Alfalfa meal	4800	12,504	1176	9.4

The differences in liver storage between chicks fed Nopcay Type V and the other vitamin A sources are highly significant. Since all chicks ingested approximately the same amounts of vitamin A, the improved utilization of Nopcay Type V is attributable to improved biological effectiveness.

If we compare the amount of vitamin A stored in the liver of chicks fed Nopcay Type V with the amount stored by those fed the other products, we find that the Type V birds stored 30.8% more than dry product "X"; 25.3% more than fish liver oil; and 74.5% more than alfalfa meal.

Basic producers of Micratized® Vitamins A and D, niacin,

EFFECTIVENESS OF TYPE V RESEARCH LABORATORIES

A WEST COAST RESEARCH LABORATORY*

Experimental Procedure

One-day-old White Rock male chicks were used in this experiment. Apart from this difference, the test procedure was the same as that of Lime Crest. Alfalfa meal was not used as a source of vitamin A in this study.

RESULTS: Liver Storage of Vitamin A (5-week-old chicks)

PRODUCT	VitaminA Added (USP units/ lb. of diet)	Vitamin A Ingested at End of 5 Weeks (USP units)	Liver Storage –Vitamin A Activity†– (USP units)	Vitamin A Stored Compared to Amount Ingested (%)
Nopcay Type V	4800	12,718	3057	24.0
Dry product "X"	4800	12,868	1050	8.2
Fish liver oil	4800	12,867	1306	10.1

**Name on request.*

†Day-old chicks averaged 38 USP units of vitamin A per liver.

The groups fed Nopcay Type V stored an average of 3057 USP units of vitamin A per liver; those fed the dry product "X," 1050 USP units; those fed fish liver oil, 1306 USP units. These data confirm previous reports which indicated that vitamin A from fish liver oil and certain dry products was poorly utilized as compared to vitamin A from Nopcay Type V. The table shows the amount of vitamin A ingested by all three lots. It further shows the percentage of vitamin A stored as compared to the amount ingested. It can readily be seen that the intake of vitamin A on all three lots was essentially the same. However, the percentage of vitamin A stored in the liver by the Nopcay Type V groups compared to the amount consumed was approximately 24%. On dry product "X" it was only 8.2% of that ingested; on fish liver oil, only 10.1%.

SUMMARY

When the level of vitamin A stored is compared to the amount ingested, we find that 24% of Type V is stored, 8.2% of product "X," and 10.1% of fish liver oil. This work substantiates previous studies concerned with the improved utilization of Nopcay Type V over other forms of vitamin A.

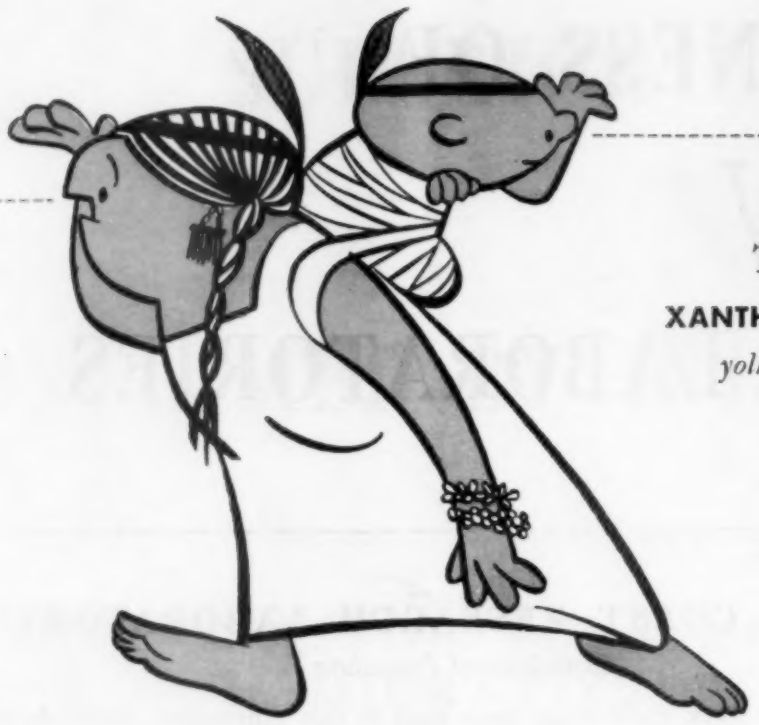
There are significant differences in the biological effectiveness of vitamin A products. These studies confirm our previously reported findings on the subject.

NOPCO CHEMICAL COMPANY

General Offices: 60 Park Place, Newark, N.J.

Plants: Harrison, N.J. • Peoria, Ill. • Richmond, Calif.

calcium pantothenate, choline chloride, and other products



The Yellow's Back!

XANTHOPHYLLS *give poultry and egg yolks that butter-yellow coloring people like!*

There Are Two Sides to This Picture!

SOME PEOPLE think you have to be BIG to get the job done. Not so —KEY DEHYDRATORS produce a better product because each firm is small!

Each of the nine companies making up KEY DEHYDRATORS is operated by a **KEY** individual who knows alfalfa . . . personally supervises or inspects every step in production from seeding fields to shipping meal. He personally sees that cuttings are made at almost the exact moment when each tenth plant bursts into bloom —just as protein and vitamin content are at their highest peaks. These Key Men guard that protein and vitamin content jealously . . . store the meal under protective coverings of inert gas . . . ship it to you in pellets or granules, sacks or bulk. And with each shipment, certifiable as the protein count and the vitamin level, rides the honor and integrity of the Key Man who processed and shipped the meal.

KEY DEHYDRATORS have all the facilities for production of top-quality, high-protein, full-vitamin meal — inert gas storage, modern pelleting and grinding machinery, automatic blending and oil treating equipment. And KEY DEHYDRATORS are independent business men . . . each personally supervising each step of production . . . each personally responsible to you, the buyer, for the quality of his product . . . each helping to maintain a free and open market for feed ingredients. Next time, make sure your alfalfa meal comes from a KEY DEHYDRATOR!

These Are Your KEY *Alfalfa Dehydrators:*

Al-Fa Meal Co.
Columbus, Nebraska

Beermann Bros. Dehy
Dakota City, Nebraska

Dehy Alfalfa Mills, Inc.
Fremont, Nebraska

F. J. Higgins Milling Co.
Schuyler, Nebraska

Trico Feed Mills
Minden, Nebraska

Iowa Valley Milling Co.
Iowa City, Iowa

Prairie Dehydrating Co.
Roanoke, Illinois

Progress Products Co., Inc.
Overton, Nebraska

Wraybill Dehydrating Co.
Sloan, Iowa

Further Increases in Corn, Sorghum Grain Crop Outturns Seen

WASHINGTON—Record-smashing corn and sorghum grain crops made further gains in estimated production during the month of October, the U.S. Department of Agriculture reported last week.

Corn production estimates gained 3% during the month to stand Nov. 1 at a record 3,786 million bushels, an 11% increase over the record 1958 production, and sorghum grain estimates moved up 5% to a new record of 639 million bushels, an increase of 14% over 1958.

Soybeans, meanwhile, stood at about the same figure as a month previous, 575 million bushels, also a record.

The estimates were a part of the Nov. 1 crop production report of the USDA, which stated that harvest of late crops progressed swiftly under sunny October weather toward early finish of this record-breaking crop year.

"Harvest peak is now past in most states without unusual crop loss," the report said. "Livestock continue to thrive on abundant field cleanup, record supplies of stored feed and forage and much good fall pasturage in many sections."

The report said the corn crop has generally matured well and moved swiftly to cribs with much less prospect of storage difficulty, other than crib space, than faced the 1957 crop. Corn picking was well past half-way stage in most Corn Belt states by Nov. 1 and nearly three fourths completed in Illinois and Iowa. Sorghum grain combining was nearing completion.

The record corn and grain sorghum crops, plus record barley and above-average oats crops harvested earlier, make a total feed grain production almost 11% above the previous record set in 1957.

Soybeans are now mainly harvested, and cotton gained slightly in a record per-acre yield prospect as 63% of the crop was ginned by Nov. 1. With flaxseed estimates unchanged from last month, oilseed tonnage increased slightly from the record October level.

Pastures in most areas Nov. 1 continued to furnish much feed in most areas. Reported condition of pastures averaged highest of record for the date.

More Turkey Bought For School Lunches

WASHINGTON—The U.S. Department of Agriculture has announced the purchase of 1,290,000 lb. of turkey for use in the school lunch program, and stated that it would continue to consider offers for about a million pounds weekly until further notice. The latest purchases bring the total bought since July 31 to 20,830,000 lb.

Prices paid for the most recent purchase ranged from 31.54¢ to 33.61¢ lb. In making awards, consideration was given to transportation costs for distribution. Offers were accepted from 10 of 20 bidders who offered a total of 4,500,000 lb.

Herman Nagel's
Trace Mineral
CONCENTRATE

Where only trace minerals are to be added, Herman Nagel's Trace Mineral Concentrate supplies all eight, in correct balance.

THE HERMAN NAGEL CO.
53 W. Jackson Blvd., Chicago 4, Ill.

Orris Case to Leave Kansas Seed Group

HUTCHINSON, KANSAS — Orris E. Case, executive secretary-treasurer of the Kansas Seed Dealers Assn., will resign his position Dec. 15 to devote full time to the Kansas Grain & Feed Dealers Assn. of which he is chief executive officer.

His successor with the seed dealers association will be H. W. Ebendorf, Wichita, Kansas, public relations man, announced Carl F. Votapka, association president.

Mr. Case took part in the organization of the association in 1947, and since then has served continuously as executive secretary-treasurer. Under the capable administration of Mr. Case, the Kansas Seed Dealers group has grown steadily in numbers and in terms of service to members and to agriculture, Mr. Votapka said. In appreciation of his fine service, the executive committee recently made Mr. Case an honorary life member of the organization.

The new executive secretary-treasurer of the seed dealers association is a native of Iowa and a long-time resident of Kansas. He was associated with the Farm Credit Administration of Wichita for nine years, and since 1943 has been engaged in industrial public relations.

NEW LEADER Model L-14S
LIME SPREADER

is a high quality rig with a low price tag!

Cut your in-the-field costs with this simple to operate, easy to maintain spreader. Merely set the feedgate opening, start the truck, engage the PTO and start spreading! Material is delivered to the twin spinners over a wide 24" conveyor. Also available with a center dump for stock piling and windrowing.

NEW LEADER *Engine-driven* Spreaders: Model L-52S with 24" conveyor is built for widespread use. Model L-62S with a 30" conveyor is for extra heavy, widespread lime applications. Both spreaders can also be used for fertilizer.

Accurately Blends and Spreads Three Fertilizers At The Same Time!

Now, offer mixed analyses at low, bulk rates!

Three separate feedgates, each with a test box for accurate metering, control the amount of spread. The driver can change the fertilizer ratio for varying soil conditions while in the field! Now, you can spread 3 kinds of fertilizer in one pass through the field . . . whereas, before it took 3 separate trips to do the job! A 7 h.p. gasoline engine drives the twin spinners at a constant rate, regardless of truck speed. The 36" belt-over-chain conveyor is powered from a drive-shaft drive synchronized to truck speed . . . for precise per-acre requirements. Optional equipment meters herbicides and insecticides into the fertilizer . . . spreads all three at once.

A *Powered Flow-Divider* assures even distribution of materials to both spinners, regardless of the position of the L-42S on hillsides or level ground. Customers appreciate this feature as it results in an even crop growth throughout the field.

Model L-19S Combination Spreader With PTO Drive, 24" Conveyor and Twin Spinners Delivers Fast, Uniform Spreads!

Simple operation saves time and upkeep. Just set the feedgate opening . . . start the truck engine . . . engage the PTO . . . start spreading! The body has 45° angle sides to prevent bridging—heavily reinforced to stop warp and twist—extended 6" higher to hold bigger payloads with less blowing.

NEW LEADER *Engine-driven* Combination Spreaders are also available: Model L-22S with a 7.0 h.p. engine and Model L-32S with a 12.5 h.p. engine to deliver plenty of power for heavy applications of lime or fertilizer.

Ask Your Nearest NEW LEADER *Distributor for a Demonstration!*

ALA.—G. C. Phillips Tractor Co., Inc., Birmingham and Prichard.
ARK.—Truck Eqpt. Co., Fort Smith, Springdale
Southern Eqpt. Co., Little Rock, El Dorado
COLO.—Madron Mfg. Co., Inc., Denver
DEL.—Bohr Spreader Service, Inc., Harrington
FLA.—Henry W. Conibear, Lakeland
G. C. Phillips Tractor Co., Inc., Birmingham and Prichard (Ala.)
GA.—Brooker Truck Eqpt. Co., Atlanta
IDA.—Oscar Bennion, Murray (Utah)
ILL.—D. H. Thomas & Son, Inc., Rockford
Koste Mach. Co., Inc., Robertson (Mo.)
Truck Eqpt. Co., Peoria
IND.—Emmert Trailer Corp., Elkhart
South Side Eqpt. Co., Inc., Indianapolis
Mulzer Brothers, Tell City, Ind.
IOWA—Badger Body Mfg. Co., Omaha
Snyder-Meylor Co., Sheldon
Wendler-Kraus Eqpt. Co., Inc., Cedar Rapids
KANS.—Perfection Truck Eqpt. Co., Wichita
Dealers Body & Eqpt., Kansas City
Perfection Spring & Eqpt., Kansas City
KY.—Mulzer Brothers, Tell City (Ind.)
Md.—Bohr Spreader Service, Inc., Harrington (Del.)
MICH.—Goes Seed & Eqpt. Co., Saginaw
Emmert Trailer Corp., Elkhart (Ind.)
Ostrom-Johnson Co., Rice Lake (Wis.)
Riedy-Manner Truck Eqpt., Toledo (Ohio)
MINN.—Snyder-Meylor Co., Sheldon (Iowa)
Ostrom-Johnson Co., Rice Lake (Wis.)
MISS.—A. P. Lindsey, Distr., Inc., Jackson
MO.—Koste Mach. Co., Inc., Robertson
Dealers Body & Eqpt., Kansas City
Perfection Spring & Eqpt., Kansas City
NEB.—Agrifirst Chem. Corp., Lincoln
Snyder-Meylor Co., Sheldon (Iowa)
NEV.—Lovelock Welding, Lovelock
N.J.—Bohr Spreader Service, Inc., Harrington (Del.)
N.Y.—H. O. Penn Mach. Co., Inc., New York, Westbury, L. I., and Poughkeepsie
Schmitz Sales & Serv., No. Collins
N.C.—O. H. Stanard, Raleigh
N.D.—Snyder-Meylor, Sheldon (Iowa)
OHIO—Orran Hofstetter, Orrville
D. L. Phillips, Damascus
Riedy-Manner Truck Eqpt. Corp., Toledo
Schodorf Truck Body & Eqpt. Co., Columbus
PA.—Annville Body Co., Annville
Ira D. Haines, Waynesburg
D. L. Phillips, Damascus (Ohio)
S.C.—O. H. Stanard, Raleigh (N.C.)
S.D.—Snyder-Meylor Co., Sheldon (Iowa)
TENN.—Tennessee Distr. Co., Donelson
UTAH—Oscar Bennion, Murray
VA.—O. H. Stanard, Raleigh (N.C.)
W. VA.—Farmers' Truck & Impl. Co., Buckhannon
D. L. Phillips, Damascus (Ohio)
WIS.—Brooks Industrial Sales, Inc., Sun Prairie
Ostrom-Johnson Co., Rice Lake

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S-P-R-E-A-D-I-N-G-!
• New Management! • New Nationwide Service!
• New Distribution! . . . means more profit for you!

Write for illustrated literature.

HIGHWAY EQUIPMENT COMPANY
631 D. Ave. N. W. Cedar Rapids, Iowa

HOW are you going your turkey br

Cut price?
More salesmen?
More advertising?
Use premiums?
More frequent delivery?
Dealer incentives?
Try contests?
More dealer meetings?
...or by adding new sales a
your feeds—appeals so stro
can't afford not to buy you

WHY not turn your these sales-bo

✳ as shown in commercial flock tests on large west coast experimental farm reported below.

LOWER MORTALITY, FEWER CULLS

	CONTROL	TERRAMYCIN (50 gm/ton)
Number of turkeys	2100	2075
Mortality, %	6.14	3.90
Culls, %	2.40	1.06

GREATER FEED EFFICIENCY

	CONTROL	TERRAMYCIN (50 gm/ton)
Lbs. feed/doz. eggs	18.6	16.0
Improvement	——	14%

MORE EGGS, MORE PROFIT

	CONTROL	TERRAMYCIN (50 gm/ton)
Total eggs laid (1000-bird basis)	76,294	80,662
Total salable eggs	67,254	72,674
Total cull eggs	9,040	7,988
Value of eggs sold (27¢/doz.)	$18,158.58	$19,621.98
Additional egg income	——	$ 1,463

BETTER HATCHABILITY

	CONTROL	TERRAMYCIN (50 gm/ton)
Hatchability, %	84	89.7
Total hatchable eggs	633	663
Extra eggs	——	30
Additional egg income (27¢/doz.)	——	$8.10

to get new customers for
eeder feeds in '59?

'58 feed into a '59 feed by adding osting Terramycin benefits!*

Breeder flock owners are busy making plans right now for 1959. They're evaluating new ideas in breeding, management, marketing, etc.

You can bet your '59 sales that feeds are an important part of this planning. Your customers and prospects are thinking "What new feed ideas can help me get more eggs, cut feed costs, produce healthier poults?"

Will you have convincing answers to these questions? Or are you going to approach these '59-minded men with your '58 feeds? Equally important, how many of your competitors will be approaching them with a '59 feed?

New feed idea

In the past few years, the advantages of Extra-Production Laying Feeds have proven a new source of extra profits for producers of table eggs.

Yet, Terramycin is just as effective in turkey breeder feeds! Increases in production as high as 26% have been obtained on commercial farms.

Why not make an Extra-Production Breeder Feed containing Terramycin? Your customer will get many extra benefits as shown in the feeding trials in the charts.

There's no formulating problem. You just add Terramycin at the recommended level to your best breeder feed.

For full details on how you can best take advantage of this opportunity, see your Pfizer representative.

Extra-Production Breeder Feeds containing **potent Terramycin®**

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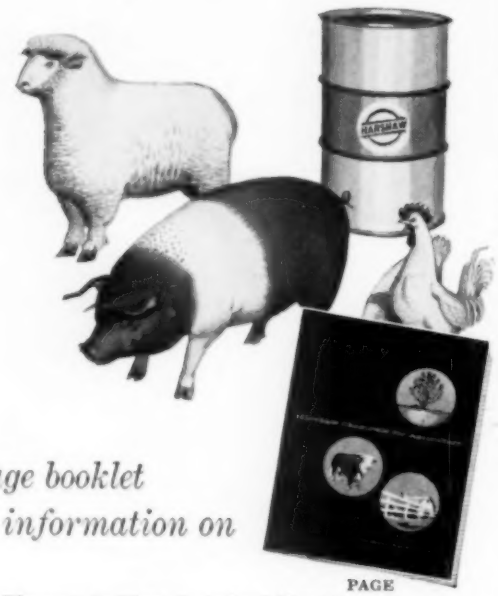

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Cobalt Carbonate
Cobalt Sulfate
Cobalt Sulfate Monohydrate
Cobalt Nitrate
Cobalt Chloride

write
for this 24 page booklet furnishing information on

	PAGE
Essential Trace Elements in Plant & Animal Nutrition	5
Trace Mineral Compounds	9
Fungicides	12
Weed Killers	14
Miscellaneous Agricultural Compounds	15
Available Literature	16
Supplementary Reading	16

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Houston • Los Angeles • Philadelphia • Pittsburgh

Early & Daniel Holds Sales Meeting; Plans Dairy Feed Promotion

FRENCH LICK, IND.—Plans were made for continuation and re-emphasis of dealer-level promotions at the recent annual sales meeting of the Early & Daniel Co., Cincinnati.

This type of promotion will be applied to a new dairy feed campaign which was released to the field men at the meeting. Under the campaign three new feeds will be introduced, one of them a special top-dressing feed containing Aureomycin which stems from the Federal Drug Administration ruling permitting the feeding of Aureomycin to dairy animals to fight subclinical diseases and increase production.

Referring to the firm's promotion plans, Donn D. Early, executive director of sales and merchandising, said reaction from the salesmen was most enthusiastic, and that since the beginning of the first dealer-level promotion, the company's over-all feed sales have shown a marked increase.

Under the dealer-level promotion, a large share of the company's advertising appropriation will be spent on direct-selling materials assembled in a merchandising package.

The entire "D-L" package is given to the dealer, with instructions for its use to help him build store traffic. While all of the material deals with dairy feeds, the company encourages the dealer to let all of his feeders, whatever they feed, in on the dairy program's benefits.

In addition to the promotion material, the dairy campaign offers the dealers a new animal nutrition laboratory service. The company will test feeders' hay samples and report through the dealer on the protein content of the hay.

To help sell the promotion program and new feeds, each dealer will use a series of five mailings, a smart new 40-page booklet containing the program, two color slide presentations, one on calves and one on the milking herd, plus a number of point-of-sale pieces and a selection of newspaper mats. All of the material is supplied free to the dealer, including the costs of the mailings. In addition, he will have the services of his sales representative, a combined sales and service man, to help plan his promotion and take part in sales "follow-through."

Donn D. Early

SALES MEETING—Donn D. Early, executive director of sales and merchandising, the Early & Daniel Co., Cincinnati, tells company sales representatives how to build dealer-level "hard sell" at the firm's recent annual sales meeting at French Lick, Ind.

Canada Will Buy Pork Cuts to Support Prices

OTTAWA, CANADA—Plans have been worked out to purchase pork cuts where and when necessary to maintain floor prices for hogs at public stockyards, the Agricultural Stabilization Board has announced.

The cuts are to be prepared at federally-inspected packing plants in accordance with prescribed specifications. They will be placed in cold storage on behalf of the board.

Cuts will be invoiced in balanced proportion, which means an equal number of each cut. However, provision has been made for the seller to retain certain cuts which may be in short supply so as to encourage maximum distribution and consumption.

The board may decline to purchase cuts from plants in areas where hog prices at local public stockyards are not in appropriate relation to the support level for that market.

Hog prices at public stockyards only will be supported, and prices at other points are to find their own level in relation to public stockyard prices.

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- IMPROVED EGG QUALITY
- BETTER SHELL QUALITY
- HIGHER HATCHABILITY
- HEALTHIER POULTRY

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Convention Calendar

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

1958

December 9-10—Minnesota Poultry & Hatchery Assn.; Radisson Hotel, Minneapolis; sec., L. L. Baumgartner, Litchfield, Minn.

1959

Jan. 20—Nevada Feed Conference; University of Nevada, Reno, Nev.

Jan. 31—Regional Swine Producers Day; Ratcliffe Hicks Bldg., University of Connecticut, Storrs, Conn.

Oct. 7-9—Texas Nutrition Conference; Texas A & M College, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

• • •

Nov. 23-25—Western Grain & Feed Assn.; Hotel Fort Des Moines, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines, Iowa.

Nov. 28-29—American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., H. H. Stonaker, Animal Husbandry Dept., Colorado State University, Fort Collins, Colo.

Nov. 30-Dec. 1—Tennessee Feed Manufacturers Assn.; Noel Hotel, Nashville, Tenn.; sec., Charles H. Warfield, 602 American Trust Bldg., Nashville 3, Tenn.

Dec. 3—Ontario Retail Feed Dealers Assn.; King Edward Sheraton Hotel, Toronto; sec., Murray H. McPhail, 60 Yonge St., Toronto 1, Ont., Canada.

Dec. 4-5—North Carolina Animal Nutrition Conference; North Carolina State College, Raleigh, N.C.; chm., Dr. E. R. Barrick, Department of Animal Husbandry.

Dec. 5-6—Arkansas Turkey Federation; Arkansas Polytechnic College, Russellville, Ark.; exec. sec., Charles D. Hawks, P.O. Box 1146, Little Rock, Ark.

Dec. 8-9 — Veterinarian-Nutrition Conference; President Hotel, Kansas City; sponsored by Midwest Feed Manufacturers Assn.; exec. vice president, Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City, Mo.

1959

Jan. 5-6 — Kansas Formula Feed Conference; Kansas State College, Manhattan, Kansas; chm., Dr. Tom Avery, Poultry Department.

Jan. 6-7—Elevator Business Managers Clinic, Michigan State University, Kellogg Center, East Lansing, Mich.; chm., Earl H. Brown.

Jan. 6-8—National Turkey Federation Convention and Exposition; Veterans Auditorium, Des Moines, Iowa; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 9-10 — Kansas Seed Dealers Assn.; Hotel Broadview, Wichita; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

Jan. 11-13—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Fleming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 18-20—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 20-21—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; chm., B. J. Duke, North Dakota Poultry Improvement Board, Bismarck, N.D.

Jan. 26-28 — Southeastern Poultry & Egg Assn., Atlanta, Ga.; sec., Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Jan. 28-30—American Dehydrators Assn., Shamrock-Hilton Hotel, Houston; exec. vice pres., Joseph Chrisman, Board of Trade Bldg., Kansas City 5, Mo.

Jan. 29-30—Oregon Animal Industry Conference; Oregon State College, Corvallis; sponsored by Oregon State College and Oregon Feed & Seed Dealers Assn.; sec., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Feb. 6-7—Minnesota Turkey Growers Assn.; Leamington Hotel, Minneapolis; sec., A. E. Eisenmenger, 2200 University Ave., St. Paul, Minn.

Feb. 9-10—Montana Nutrition Conference; Montana State College, Bozeman, Mont.; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 11-12 — Feed Mill Production School; Leopold Hotel, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., J. G. Wilson.

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814 Second Avenue Bldg., Seattle, Wash.

Feb. 12-13 — Washington State Feed Assn.; Leopold Hotel, Bellingham; mgr., J. G. Wilson, 814 Second Avenue Bldg., Seattle, Wash.

Feb. 13-15—Institute of American Poultry Industries' Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; Institute of American Poultry Industries, 59 E. Madison, Chicago 2, Ill.

Feb. 16-18—Midwest Feed Manufacturers Assn., annual convention, Muehlebach Hotel, Kansas City, executive vice president, Lloyd Larson, 20 West Ninth St., Kansas City, Mo.

Feb. 22-24—Colorado Grain, Mill & Feed Dealers Assn.; Shirley Savoy Hotel, Denver, Colo.; sec., Olaf Erickson, 714 Cooper Bldg., Denver 2, Colo.

Feb. 23-26 — Colorado Livestock Days; Colorado State University, Ft. Collins, Colo.; chm., Dr. Lamar Esplin.

Feb. 24-25—Virginia Feed and Nutrition Conference; Hotel Roanoke, Roanoke, Va.; co-chm., Wm. G. Ritchie, J. S. Ritchie & Sons, Petersburg, Va., and Paul M. Reaves, professor Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

Feb. 26—Illinois State Turkey Growers Assn.; Animal Sciences Laboratory, University of Illinois, Urbana, Ill.; sec., S. F. Ridlen, Poultry Extension Specialist.

March 1-3 — Ohio Grain & Feed Dealers Assn., Inc.; Neil House, Columbus, Ohio; sec., G. E. O'Brien, 710 N. Ohio Street, Greenville, Ohio.

March 19-20—Oregon Feed & Seed Dealers Association; Multnomah Hotel, Portland; sec., Russ Hays, 702 Lewis Bldg., Portland 4, Ore.

March 19-20—Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. Richard D. Creek, Poultry Husbandry Department, University of Maryland, College Park, Md.

March 25—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati 2, Ohio.

April 2-4—Pacific Dairy & Poultry Assn.; Coronado, Cal.; sec., Carl E. Nall, 1304 E. 7th St., Los Angeles.

April 12-15—National Fisheries Institute; Hotel Commodore, New York City; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

April 12-17—Grain Elevator & Processing Superintendents; Multnomah Hotel, Portland, Ore.; sec., Dean M. Clark, 1120 Board of Trade Bldg., Chicago 4, Ill.

April 30-May 2—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

May 8-10 — Grain Processing Machinery Manufacturers Assn.; Chicago; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

May 11-13—American Feed Manufacturers Assn. Convention and National Feed Industry Show; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 15-16—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

June 7-9—Indiana Grain & Feed Dealers Association; Sheraton Hotel, French Lick, Ind.; sec., Fred Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 7-9 — Eastern Federation of Feed Merchants, Pocano Manor Inn, Pocano Manor, Pa.; sec., Austin W. Carpenter, Sherburne, N.Y.

June 8-10—Alabama Poultry Industry Assn.; Municipal Auditorium, Birmingham; exec. sec., W. L. Walsh, P.O. Box 567, Montgomery, Ala.

June 9-10—Association of Southern Feed and Fertilizer Control Officials; Velda Rose Motel, Hot Springs, Ark.; sec., Bruce Poundstone, Agricultural Experiment Station, University of Kentucky, Lexington, Ky.

July 10-14 — Georgia Feed Assn.; General Oglethorpe Hotel, Savannah,

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Ga.; sec., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5, Ga.

Sept. 13-14—Grain and Feed Dealers National Assn. (work meeting for directors, committees and members), Minneapolis; exec. v. pres., Alvin E. Oliver, 400 Folger Bldg., Washington 5, D.C.

Oct. 14 — Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 20-21—Virginia State Poultry Federation; Hotel John Marshall, Richmond, Va.; sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Fats, Oils Use in Feed Reported for September

WASHINGTON — Consumption of inedible fat for feed use during the month of September was 33,306,000 lb., according to a report from the U.S. Department of Commerce.

Of this amount, only the following totals were shown to avoid disclosing figures for individual companies: Inedible tallow and grease, 27,876,000 lb.; grease, inedible, refined, 1,643,000 lb.; fish oil, 1,887,000 lb., and vegetable foots, 1,616,000 lb.

Furazolidone Cleared For Avian Hepatitis Treatment by FDA

ASHLAND, OHIO—Use of nf-180 (furazolidone) for treatment of infectious hepatitis in chickens has been permitted to become effective by the Food & Drug Administration, veterinary section, it was announced here by Russell H. Eshelman, vice president in charge of marketing of Hess & Clark, Ashland.

The supplemental claim was allowed by the FDA at a treatment level of 4 lb. of nf-180 (200 gm. furazolidone) per ton of total ration for 14 days. If necessary, treatment should be repeated. However, researchers reported no evidence of relapses in treated birds up to eight weeks after inoculation, the announcement said.

Much of the research work on avian infectious hepatitis was performed by Dr. M. Sevoian, department of veterinary science, University of Massachusetts, with co-workers R. W. Winterfield and C. L. Goldman.

Tests were conducted with nine of the more promising drugs on both prevention and treatment of the disease. According to Dr. Sevoian, furazolidone was consistently better than any of the drugs tested when given on a therapeutic basis.

It was also determined that infected birds treated with furazolidone did not suffer a relapse of the disease after discontinuing treatment.

Although avian infectious hepatitis is not a new disease it was only recently identified. Many poultrymen do not recognize its presence in the flock until the drop in egg production has reached 25 to 30%. Often only a small portion of a flock appears affected at a time. With pullet flocks just coming into production, egg production lags. When not treated the disease may last for several weeks. Mortality may range up to 15% during the course of several weeks.

The disease is being identified by an increasing number of veterinary pathologists in the U.S. as they become more familiar with it. Hess & Clark labels for nf-180 will carry treatment instructions for infectious hepatitis in the immediate future, Mr. Eshelman stated.

American Molasses Co. Buys Indiana Company

INDIANAPOLIS — American Molasses Co., New York, producer of edible and industrial molasses, has acquired the stock of Liquid Sugars, Inc., Indianapolis. The Indianapolis firm will be operated as an American Molasses subsidiary, and local management will remain unchanged.

No stock was held by the public. Morris G. Lewin is president and treasurer of Liquid Sugars, and Mrs. C. Lewin is secretary.

American Molasses stock is listed on the New York Stock Exchange. The company is one of the biggest liquid refiners in the U.S., with an annual volume of 300-400 million pounds.

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Omalass OR Scotch O Lass

DRIED BLACKSTRAP MOLASSES

ONE OF THESE TWO IS BEST FOR YOU

OMALASS— the original dried blackstrap molasses product. Each 100 lbs. contains the solids from 93 lbs. feeding cane molasses (23 lbs. of water removed) and 30 lbs. Corn Oil Meal. Convenient 50-lb. bags.

SCOTCH O LASS—the thrifty dried blackstrap molasses. Each 100 lbs. contains the solids from 85 lbs. feeding cane molasses (21 lbs. of water removed) and 36 lbs. soybean mill feed. Handy 50-lb. bags.

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Company .....
Street .....
City ..... State.....

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Farm and Feed Salt NEWS

FROM INTERNATIONAL SALT COMPANY, INC.

Feed Manufacturers . . . it's up to you

. . . to Supply Poultry, Swine with Adequate Salt, Trace Minerals

Since poultry get no free-choice salt, and swine get very little, it's important for *feed manufacturers* to add the correct amounts of salt and trace minerals to poultry and swine feeds. The surest way to do this is to mix Sterling Gold Bond Blusalt in poultry feeds, and Sterling Swine Supermix Blusalt in swine feeds. Each of these salt products, properly mixed in your feed, assures the now known correct trace-mineral balance from mill to feed hopper. Your customers benefit from this—and you benefit from their satisfaction.

Sterling Gold Bond Blusalt contains extra manganese and zinc in the correct proportions to guard against leg weakness in chickens and turkeys. To counteract Parakeratosis in pigs, Sterling Swine Supermix Blusalt contains extra zinc in a readily available form. In addition to these manganese and zinc additions, both salt products also contain the now known correct amounts of iron, sulfate sulfur, copper, cobalt and iodine—blended with high-quality salt, the ideal natural carrier.

Guaranteed analyses, plus tables showing just how much Gold Bond or Swine Supermix Blusalt you should add to the many different types of poultry and swine feeds, are available from International Salt Company. Ask your Sterling representative, send a card to International Salt Company, Inc., Scranton 2, Pa., or contact our sales office nearest you.

SELL THESE PROFITABLE STERLING SALT PRODUCTS THROUGH RETAIL OUTLETS

With livestock soon going on spring pasture, the demand will increase for salt products to feed free choice. Retail feed stores can capitalize on this demand by stocking and selling these popular Sterling Farm Salt products.

STERLING BLUSALT: trace-mineral salt for free-choice feeding and for your custom grist mixes. Contains seven trace minerals needed for good growth and feed efficiency (manganese, iron, sulfate sulfur, copper, cobalt, iodine and zinc). In colorful bright-blue bags, 50-lb. blue blocks and 4-lb. blue Liks.

STERLING GREEN'SALT: trace-mineral salt plus 10% phenothiazine for effective low-level control of certain internal parasites. In attractive 25- and 100-lb. green and red bags—for free-choice feeding, feed mixing or to add on top of feeds.

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- Chickens can tolerate rather high levels of salt in feed. Even levels of eight per cent were found to be non-toxic over a short period of time. However, do not try to feed this level, since excessive water consumption will result in wet litter.
- **The big spring push is on**—to help retail outlets sell more Sterling Farm Salt products. Sterling ads give helpful hints on livestock management and production and on the proper use of salt for livestock feeding.

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You can get it from International Salt Company's Animal Nutrition Department. Located in Watkins Glen, New York, this department does continuing research into the proper use of salt and trace minerals in modern livestock and poultry feeding programs. This is *your department* to consult at any time for advice on your mixing or feed-formula problems, and for information on any of the Sterling Salt products.

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Poultry Profit Building Keys Program Plans For NEPPCO Meeting

TRENTON, N.J. — A program geared to "wringing more profits for poultrymen" has been announced for the northeastern "quickie" conference to be held at the Hotel Shelton, Springfield, Mass., Dec. 10-12.

Dr. Alfred Van Wagenen, managing director of the Northeastern Poultry Producers Council here, said the American Poultry & Hatchery Federation and the Massachusetts Federation of Poultry Associations will join with NEPPCO in staging the conference.

The lead-off speaker will be Dr. Lawrence D. Rhoades, University of Massachusetts, who will scan the poultry industry outlook. "Managing Dollars as Well as Chickens" is the topic for the second speaker, Dr. Irving F. Fellows, University of Connecticut. Don Corbett, Ft. Halifax Packing Co., Waterville, Maine, follows with a talk on broiler contracts, and winding up the program will be a three-man panel on the pros and cons of started pullet programs. The Federation will hold its annual banquet that evening in the Sheraton-Kimball Hotel.

Planning in a changing industry kicks off the second day's program, with Harold M. Williams, president of the Institute of American Poultry Industries at the helm. Warren A. Ranney, Cooperative GLF Exchange, Ithaca, will follow with a discussion designed to make sense out of the poultry integration picture. The afternoon starts the APHF part of the program and will be given over to a three-hour seminar and workshop on sales leadership conducted by the Lawrence-Leiter Co., Kansas City, Mo. A similar session will be held on the afternoon of the final day. A "ladies entertainment" and "Rooster Round-up" are social functions planned for the end of the second day.

"Hidden Profit Leaks" is the opening topic in the final day's session, followed by a panel discussion on sales incentive programs for hatcheries.

"Spotted through all three days of the conference will be special films 'with a point'," Dr. Van Wagenen commented.

He went on to point out that the new conference is a first for the Northeast poultry industry in that it brings three vital poultry meetings into one grand session. Normally, each of the sponsoring agencies would have held their own special and separate conferences.

NEW FEED COMPANY

MERCED, CAL.—The Collins Feed & Cattle Co. has been formed here to process livestock and poultry feeds and grains. Owners of the firm include Jack F. Collins, Patrick L. Nolet and Chester C. Cook, all of Merced.

C. Aubrey Tingen

PRODUCTION MANAGER—C. Aubrey Tingen has been promoted to production manager at Hess & Clark, Inc., Ashland, Ohio, according to Donald E. Clark, vice president in charge of manufacturing. Formerly production engineer, Mr. Tingen will in his new post be responsible for production of the firm's full line of poultry and livestock health products. A graduate of Duke University, he came to Hess & Clark in July, 1957, from the manufacturing division of the Vick Chemical Co., Greensboro, N.C., where he was assistant production manager.

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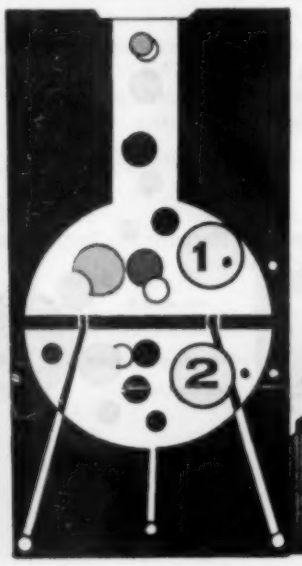

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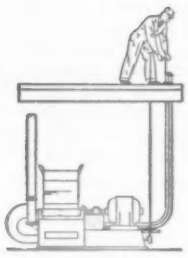

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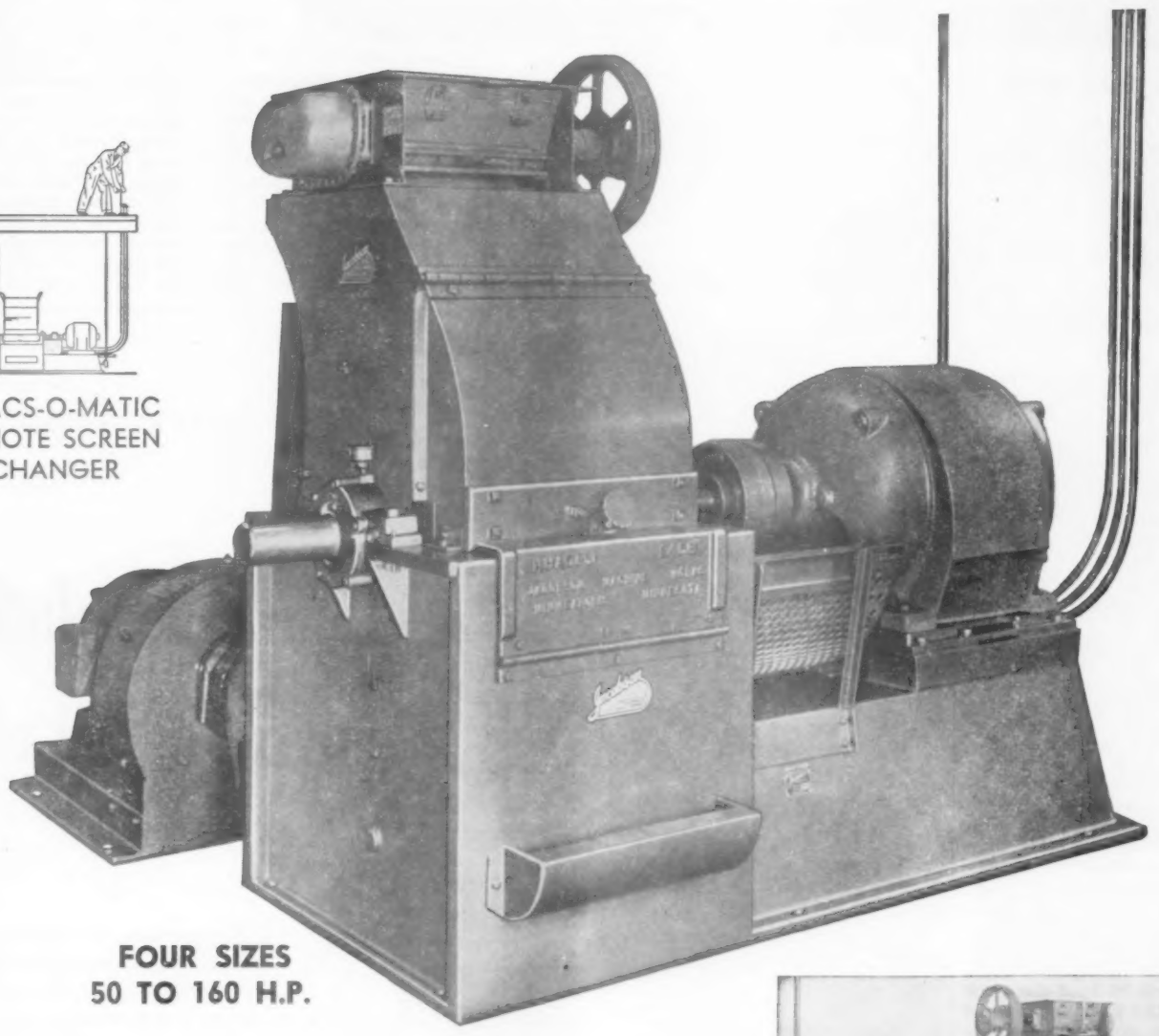

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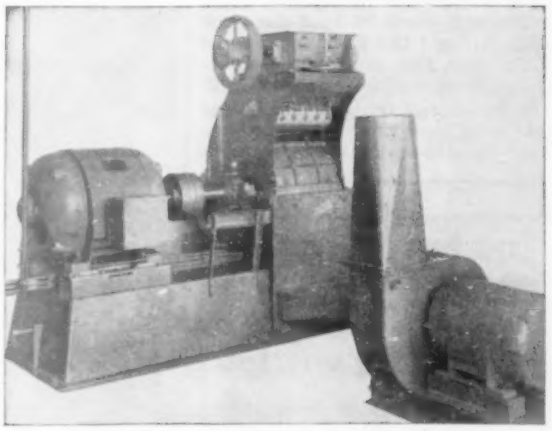

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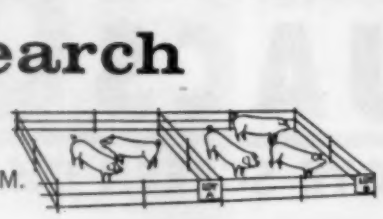

BY SPENCER H. MORRISON, PH.D., D. V. M.

Sugar Beet-Top Silage for Dairy Cows

● C. F. Huffman, C. A. Lassiter and C. W. Duncan; Michigan State University Quarterly Bulletin, Vol. 41, No. 1, August, 1958, pp. 189-197.

AND

Sugar Beet-Top Silage Effects on Milk Flavor

● J. M. Jensen, C. A. Lassiter and C. F. Huffman, same publication, pp. 232-236.

ABSTRACTS

These trials were conducted to determine the feeding value and the flavor effects of sugar beet-top silage harvested by modern machinery which does not remove the crowns from the plant. Only the tops are harvested, before the roots and crowns are dug; thus less dirt is present in the resulting silage and the palatability is greatly increased.

Two feeding trials were conducted with milking cows using beet-top silage ensiled with 200 lb. dried beet pulp per ton of green material. In the first experiment using three pairs of cows, the beet-top silage was used as a replacement for a major part of the grain fed (approximately 78.05%). Also, in the same experiment, six cows were fed good second cutting hay alone for 18 days, and then 12.4 lb. of hay was replaced by 50 lb. of beet-top silage. Digestion trials were also conducted using four other cows to determine the coefficient of digestibility on the silage alone.

The results of the first experiment showed that when 35 lb. of beet-top silage replaced 6.4 lb. of grain in all-hay ration, good milk production was maintained. When 50 lb. of the same silage replaced 12.4 lb. of good second cutting hay, four of the six cows increased in yield of fat-corrected milk.

In the second trial, two groups of eight cows each were fed an average of 85 lb. of beet-top silage as a replacement for an average of 21.9 lb. of the hay in the ration, a mixture of equal parts of both late and early first-cutting alfalfa. The cows consumed an average of 27.8 lb. of hay during the hay ration feeding period, and an average of 5.9 lb. daily during the silage ration period. The experimental design was a reversal design of 24-day experimental periods. The first six day results were not used in calculating the observed effects. The cows averaged 22.4 and 29.1 lb. of fat-correct-milk per day on the basal and beet-top rations, respectively. The cows were fed an average of 3.4 lb. of grain mixture daily during the hay ration period, and 3.6 lb. daily during the beet-top silage ration. The cows on the beet-top silage ration lost an average of 16.2 lb. during the silage feeding period, and gained an average of 47.4 lb. while on the hay feeding period.

The flavor of the milk produced by the cows in Experiment 2 was not adversely affected when the beet-top silage was fed after milking. However, in the companion work as reported in the second paper by Jensen et al, when the beet-top silage was fed shortly before milking, strong feed flavors were found in the milk. When silage was fed after milking, excellent, feed-free flavored milk was produced.

COMMENT

Modern methods of sugar beet harvesting, removing beet tops before the roots are dug, do not result in the crowns or as much dirt or trash being included in the by-product as with former methods in which the beets were dug first, and then tops and crowns removed. Although former work with the older-type product conducted quite a few years ago demonstrated quite variable results, the new work with the new by-prod-

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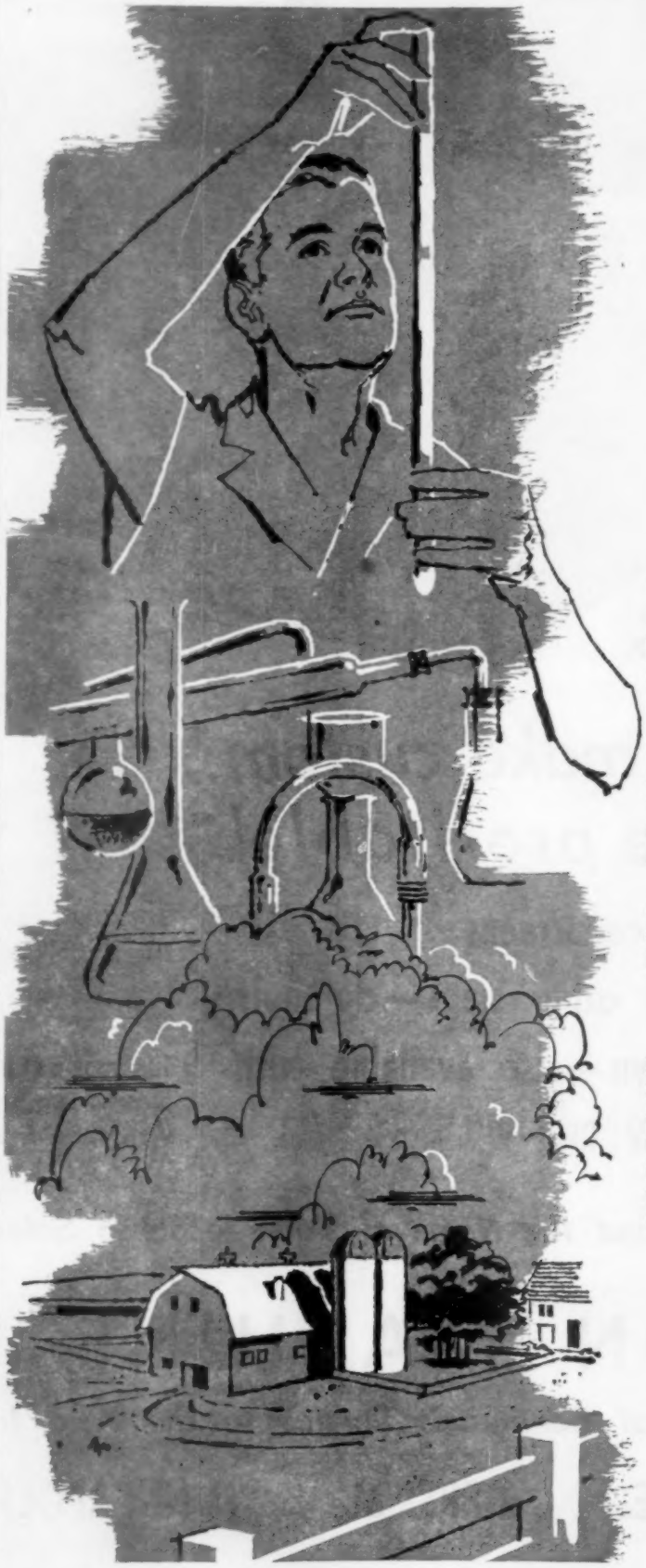

The Influence

Hemorrhagic conditions due to vitamin K deficiency have been largely eliminated. The widespread use of water-soluble, easily-absorbed and more potent, synthetic vitamin K has played a major role in this success.

One gram of KLOTOGEN F (Abbott's stabilized menadione sodium bisulfite) per ton of feed provides protection under most conditions. This level of Abbott's highly-active form of vitamin K has been used with satisfactory results by feed companies for several years.

But cases of hemorrhaging still arise, either as one of the symptoms or as one of the results of disease or other stresses. Under these conditions, higher levels of vitamin K may be required.

Nutrition suffers when diseases—or other stresses—strike

Birds need all of their strength to throw off the infection and to make rapid recovery. The additional stress of either the disease or drugs used to treat the condition may increase the need for certain nutrients. Sulfa drugs clearly increase the need for vitamin K in feeds at a time when vitamin K is low[1,2]. When adequate vitamin K

uct demonstrates that beet-top silage is a valuable adjunct to dairy production where available at reasonable cost.

Approximately 700 to 800 pounds of tops are harvested per ton of beet roots, and reasonable yields are in the neighborhood of 12 tons of roots per acre. On a dry basis the estimated T.D.N. content of the beet-top silage was 62.6% in the second trial, while the actual T.D.N. determined in the first trial was 58.8%. On a wet basis (78.4% moisture), the actual T.D.N. content in the first trial was 12.7%. It is estimated that good well matured-dent corn silage contains 18.3% T.D.N. when containing 72.4% moisture. When one considers that the cows quickly lost some weight in a short period of time on the beet-top silage ration in the second trial, and in view of the lower than corn-silage T.D.N. content, it would probably be wise to include somewhat more grain in the ration if beet-top silage is to be used as a substitute for corn silage. It should also be realized, however, that silage rations, regardless of type fed, often result in weight losses of milking cows. Since the results in the first experiment indicated that the T.D.N. content in the silage had about the same milk producing value as the T.D.N. content in the grain mixture, beet-top silage can be apparently substituted on an equal T.D.N. basis as a replacement for a large share of the grain mixture for cows of average producing ability.

●

Effects of Selenium and Vitamin E on White Muscle Disease

● O. H. Muth, J. E. Oldfield, L. F. Remmert and J. R. Schubert, Oregon Agricultural Experiment Station; Science, Vol. 128, No. 3331, Oct. 31, 1958, p. 1090.

ABSTRACT

Sixty ewes were used in an experiment to study the factor or factors involved in the cause of white muscle disease of lambs resulting when legumes from certain areas are fed to dams during the gestation period.

The experimental lots of 12 ewes each were fed the following rations:

Lot 1—Control ration of Ladino clover and alfalfa hay grown in a relatively nonaffected area plus 0.25 lb. of oats per ewe per day.

Lot 2—Basal ration consisting of Ladino clover hay from a severely affected area plus 0.25 lb. of oats per ewe per day.

Lot 3—Basal ration as above, with 770 I.U. of a-tocopherol administered **parenterally** as d-o-tocopheryl polyethylene glycol 1,000 succinate **per ewe per week.**

Lot 4—Basal ration as above, with 100 I.U. of a-tocopherol administered orally per ewe per day as Myvamix.

Lot 5—Basal ration as above, with 0.1 part of Se per million, calculated for the total ration administered orally, as Na_2SeO_3, with the oats.

A preliminary trial had indicated that the injected vitamin E level used in Lot 3 was able to maintain satisfactory blood levels of this vitamin in ewes fed the basal ration. The animals were placed on the various diets 50 days after the bucks had been placed with them, and then the respective experimental rations were continued for approximately 140 days, the termination being governed by the ages of the individual lambs. One of each pair of twins occurring in lots 1 and 2 were sacrificed soon after births. These, and all other lambs that died, were necropsied. Most of the deaths occurred at about six weeks of age with a few exceptions.

Analysis of the hays fed in the experiment revealed levels of less than 0.1 part of selenium per million according to the analytical method employed. The results indicated the following degree of development of stiff lamb symptoms in terms of lamb crop on the various rations: Lot 1—5.6%; Lot 2—73.3%; Lot 3—73.3%; Lot 4—80.0%, and Lot 5—6.2%. It is self-evident that selenium in the amounts used and under the conditions of this experiment exhibited considerable protective action against the development of white muscle disease.

COMMENT

Vitamin E and the relationship of other factors such as DPPD, and ewe diet, have previously been reported by several workers (Draper and Johnson, 1955; Bowman, 1958; Hogue et al, 1957; Culik et al, 1951, 1952; Safford et al, 1956; Oldfield et al, 1958, and Whiting et al, 1949). The general conclusion appears to be that white muscle disease is not a simple vitamin E deficiency, although a fairly large degree of protection is often secured by the presence of antioxidants in the ration.

It has recently been reported by several workers, including Schwarz et al (1957) and Patterson et al (1957) that selenium exhibited a protective action in vitamin E deficient diets for liver necrosis in rats and exudative diathesis in chicks. This work by the Oregon group reported above also indicates an interesting pharmacodynamic interrelationship between selenium and white muscle disease.

FEED STORE CLOSES

HOLLISTER, CAL.—Dick and Bill Maroney, owners of a feed and seed store here, have dissolved partnership and closed out their complete stock. Ill health of Dick Maroney was given as the reason for the action. Bill Maroney will continue the firm's insecticide business.

Research Progress Report: **KLOTOGEN-F®**

of Disease and Other Stress on Vitamin K Requirements in Poultry Rations

is given, counteracting its most specific stress effect, the sulfa drug hits the parasite rather than the host.

Harms and Tugwell have shown that vitamin K-deficient birds readily bleed to death when subjected to coccidiosis[3]. But when birds had adequate vitamin K prior to infection, mortality was negligible[3,4]. This finding was duplicated in our own laboratories[5].

Nelson and Norris concluded that some specific feed additives increase the requirement for vitamin K[6]. They suggest that at least two grams per ton of menadione sodium bisulfite be used to increase the vitamin K activity of rations containing these feed additives.

In trouble-shooting feeds—particularly where high levels of sulfa drugs are used to arrest coccidiostatic conditions—the use of 2 to 4 grams of KLOTOGEN F per ton provides a more effective level of anti-nemorrhagic protection than the 1-gram level. With renewed use of sulfa drugs in therapeutic feeds, such a change in recommendations would be warranted. Abbott has had recent occasion to recommend 4 grams per ton of KLOTOGEN F in specific cases.

Nelson and Norris found that 7.5 grams KLOTOGEN F per ton provided adequate anti-hemorrhagic protection when 0.125% sulfaquinoxaline was used[6]. This is in accord with *our* published findings[2].

Thus, studies are straightforward in a few diseases—such as coccidiosis—where the parasite is handy to use. Here, one can define all aspects of the problem and study each aspect individually. However, a major problem still exists in finding where nutrition fits into susceptibility and severity of other diseases, such as C-R-D.

There may not be many instances where diseases, other stress, or drugs create a need for higher levels of vitamin K in rations. But where such instances arise, use of more than the 1-gram level of KLOTOGEN F can be recommended with safety, and the recommendation based on experimentally-proved results.

As further research is completed on the broader aspects of vitamin K usage, Abbott will report the findings.

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Supersweet Feed Sales Hit Record

MINNEAPOLIS—Sales of formula feeds by the Supersweet Feeds division of International Milling Co., Minneapolis, were the largest of any year since the company entered the formula feed business, it was reported at the firm's recent annual stockholders meeting in Minneapolis.

It was noted in International Milling's annual report that the company's new experimental research farm at Courtland, Minn., went into operation in March, completing the first phase in a five-step farm building program at that location. It was pointed out that the new facilities will enable the firm to expand its feed research and experiments. An experimental station is also maintained at Des Moines.

At the meeting the company reported the greatest volume of total sales in its 66-year history for the fiscal year which ended Aug. 31.

Bulk shipments of products in the company's fleet of specially built bulk railroad cars and trucks reached an all-time high.

Payments for wages and retirement benefits were also greater than any previous year.

For the company as a whole, the annual report showed profits of $4,374,495 which compare with last year's net of $4,861,804. Earnings per share of common stock were $6.34 compared to $7.01 last year.

The balance sheet showed current assets at $65,680,416 up from $61,501,490 last year while total assets rose from $91,138,504 to $99,770,098. Working capital is reported at $35,032,119.

In a letter prefacing the annual report, Charles Ritz, chairman, and Atherton Bean, president, said that "the long strike at Humberstone (Ont., Canada) was in part responsible" for the decline in profits, "but the principal cause was the intense competition which characterized the U.S. milling industry."

"We are hopeful that the industry's present level of production, which is the highest in 10 years, will bring about an improvement in mill earnings," the letter said.

Employees numbered 4,228 at yearend. Three hundred sixty-three employees are now holders of the company's common stock. In many cases these stockholders have spent their entire business life with International. During the year 39 employees retired with an average length of service of 24 years.

Clyde Thompson

R. W. Pifer

TWO APPOINTMENTS — McMillen Feeds Mills, Ft. Wayne, Ind., recently announced the appointment of R. W. Pifer as beef feeds manager, and Clyde Thompson as hog feeds manager for the company. Mr. Pifer has served as livestock specialist since 1954. Prior to joining the company, he was executive secretary-manager of the Ohio Aberdeen Angus Breeders Assn., and taught in the animal husbandry departments of Purdue University, the University of Kentucky and Ohio State University. He will be responsible for the sale and promotion of Master Mix Beef Feeds. Mr. Thompson has been associated with the feed industry since 1939 and has experience in livestock feeding. He has previously served as a Master Mix territory and district sales manager. In his new position he will be responsible for the sale and promotion of Master Mix Hog Feeds.

PRODUCE QUALITY BEEF *FASTER*

with **DEHY** in the ration!

W. D. Farr

Farr Farms, Inc., near Greeley, Colorado, is but one of many commercial cattle feeders in that area who feed cattle on a year-round turn-over basis, producing a standard uniform product, namely U. S. Choice beef. In telling of these cattle feeding operations Mr. Farr reported that these feeders "sell cattle almost every week. Their cattle have a reputation on the market with the packer, and this reputation is important to each feed lot because it means a good price for each shipment. At least 80 to 90 percent of these reputation feeders use dehydrated alfalfa. I point this out to prove the point that cattle fattened with dehy in the ration seem to produce higher quality beef."

TEST AFTER TEST

in drylot feeding proves that cattle put on weight faster and more economically with DEHY in the ration.

For example, W. D. Farr, a Colorado livestock man who has been feeding cattle for 30 years says, "We have conducted many gain tests in our feed lots, using different levels of dehydrated alfalfa. We have found an increase in gain per head per day at each feeding level up to 3 pounds daily. Another value for dehydrated alfalfa in fattening cattle rations is the almost complete elimination of urinary calculi."

Experiment Station tests prove value of DEHY. Tables taken from the 46th Annual Feeders Day report made by Experiment Station, University of Nebraska, April 18, 1958

Effect of Protein Supplements (with and without stilbestrol) on Daily Gains and Feed Efficiency

Supplement	No Stilbestrol Daily Gain	No Stilbestrol Feed/cwt.	With Stilbestrol Gain Daily	With Stilbestrol Feed/cwt.	Average Gain Daily	Average Feed/cwt. Gain
Soybean oil meal	1.86	1058	2.51	853	2.19	956
1-X level dehy. alfalfa	2.47	901	2.61	879	2.54	890
2-X level dehy. alfalfa	2.23	1018	2.64	894	2.44	956
Dehy. alf. + S.O.M.	2.38	891	2.59	860	2.49	876
Average	2.24	967	2.59	872	2.42	920

1-X level, 2.3 lbs. daily
2-X level, 4.5 lbs. daily

The Effects of Protein Supplements on Carcass Grades

Carcass Grades	1-X level dehy. alfalfa	Soybean oil meal	S.O.M. + dehy.	2-X level dehy. alfalfa
	%	%	%	%
High Choice	70	40	35	50
Avg. Choice	20	45	30	30
Low Choice	0	0	5	0
High Good	0	0	0	0
Avg. Good	10	10	20	20
Low Good	0	5	0	0

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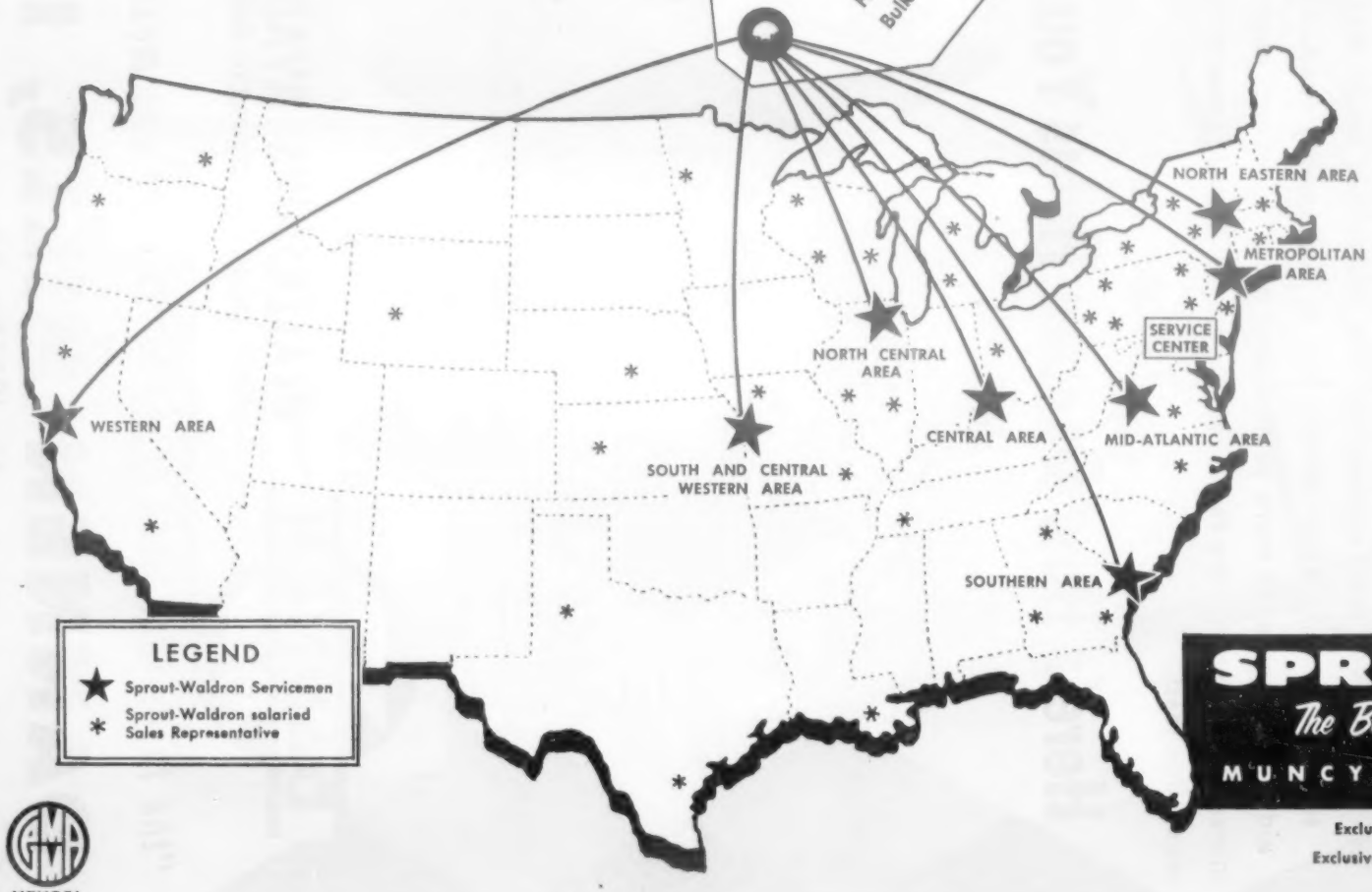

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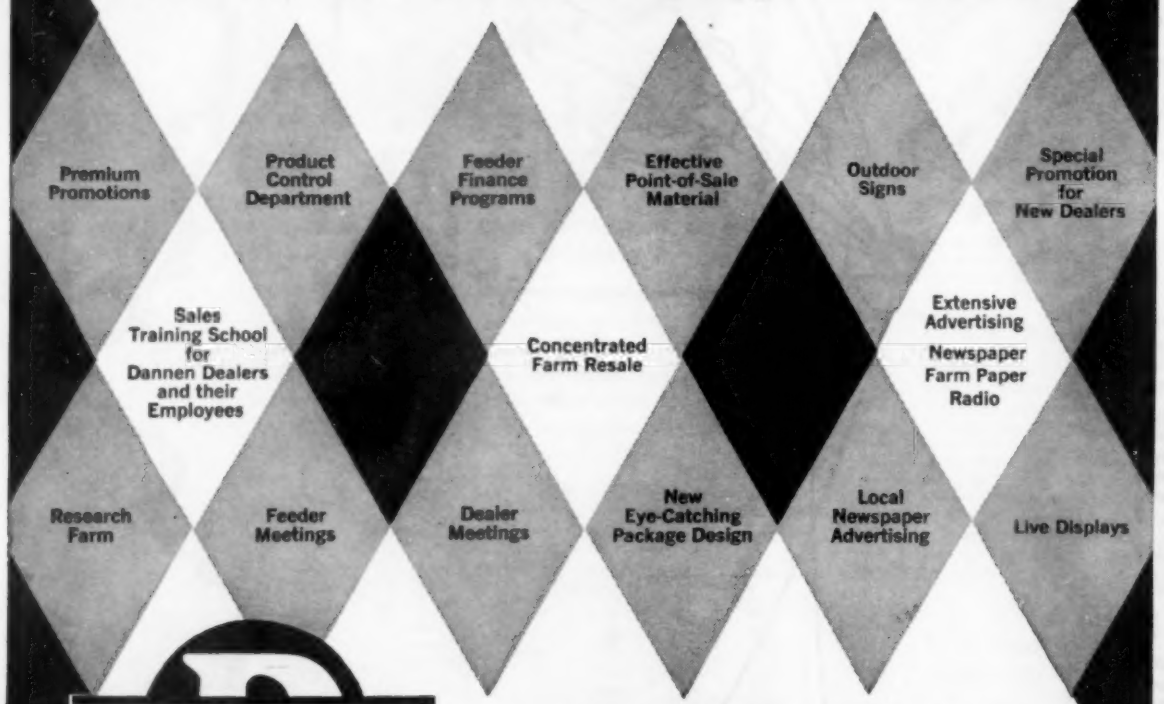

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The businessman sat in his office dictating a letter to his secretary when, suddenly, p a s t the window plunged a fellow executive from the floor above.

"Good heavens!" he cried, rushing to the window. "Isn't that George Lapham? Why, he just got back from Florida this morning!"

"Well, it certainly m u s t have agreed with him," said the secretary. "Did you notice that tan?"

◆ ◆ ◆

The locker-room flunky had been laboring at his jobs for 20 years. He swept the floors, mopped the shower rooms, washed the dirty socks, disinfected the pool, cleaned the lockers, picked up the scraps in the trainer's room and put out the garbage. All without complaint—until he came home one evening and bitterly cried to his wife:

"Imagine, the school is starting freshman football this year plus track. That means 120 more pairs of dirty socks to wash every night and all that extra sweeping, mopping and disinfecting. It isn't fair!"

"Why don't you quit?" his wife asked.

"I'd like to," he sobbed, "but how can I give up sports?"

◆ ◆ ◆

"What did mama's little boy learn in school today?" simpered a lady at her offspring.

"I learned two boys," responded Junior, "not to call me 'mama's little boy'."

◆ ◆ ◆

On his way to the city, commuter Jim Smith found himself seated next to a very nosy neighbor. During the course of their conversation the curious one asked Smith what he had paid for his house, his car, and what dues he paid at the country club. The exasperated Smith replied as shortly as possible, but the interrogator was undismayed as he continued: "I hear you sold that pedigreed retriever dog of yours."

"Yes," said Smith.

"Do you mind telling me what you sold him for?" pursued the questioner.

"Not at all," retorted Smith. "I sold him for chewing the table leg."

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A WEEKLY NEWSPAPER
For the Feed Manufacturer, Feed Jobber Feed Broker and Feed Dealer

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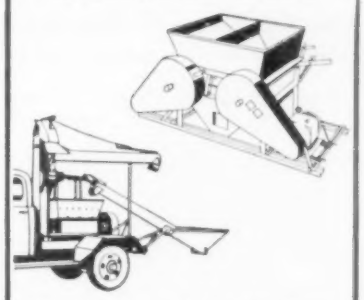

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Turkey Program Set For Southeastern Poultry Convention

ATLANTA, GA.—The turkey program for the Southeastern Poultry & Egg Assn.'s 12th annual Convention and Trade Show at Atlanta Jan. 26-28 has been announced.

Paul G. Thomas, association president, said the turkey program on Jan. 27 will bring together several nationally prominent spokesmen specializing in various fields within the industry. He said that other phases of the program are also shaping up rapidly and will be announced shortly.

Among the speakers at the turkey session will be L. A. (Tiny) Wilhelm, poultry research manager for the Quaker Oats Co., Chicago; Dr. William A. (Doc) Billings, retired college poultry specialist, St. Petersburg, Fla.; Dr. J. R. Couch, animal nutritionist at Texas A&M College, and Dr. C. K. Laurent, general manager of Marbut Milling Co., Augusta, Ga.

Dr. Wilhelm, once assistant head of Purdue University's poultry department, in 1943 received the Poultry Science Assn.'s annual award for meritorious work as a Purdue extension poultryman. His Southeastern convention subject will be "Merchandising Opportunities for Turkeys."

Dr. Billings has retained an active interest in turkey matters since retirement as a University of Minnesota extension turkey specialist. Dr. Couch, winner of a nutritional research award of the American Feed Manufacturers Assn., will discuss "Feeding and Management of Turkey Breeders."

Dr. Laurent has played an important role in the association's various development and educational programs, as well as its annual convention. The former head of the University of Georgia poultry department will point out means of "Taking Advantage of Opportunities in Turkey Production in the Southeast."

Mr. Thomas said the convention turkey program is considered by many to be of unusual importance in view of an increasing number of predictions for a growing turkey industry in the Southeast.

He reminded conventiongoers seeking lodging accommodations to address requests to the Atlanta Convention Bureau, Rhodes-Haverty Building, Atlanta 3, Ga.

Sedberry Expands Plant Facilities

TYLER, TEXAS — J. B. Sedberry, Inc., has expanded its plant facilities at Tyler, and has increased the sales, parts and customer services available from both company locations at Tyler and Franklin, Tenn., according to H. Z. Smith, vice president of Sedberry.

In the expansion at Tyler the company has acquired property across the street from its present plant. Machinery has been installed for the manufacture of additional industrial and milling equipment, as well as for increased production of the present line of hammermills, mixers and other feed processing and handling units.

Sedberry has also added personnel and facilities for plant design and machinery installation, and offers planning, blueprint, and millwright services for complete installations throughout the U.S.

As a further customer service in connection with its mobile unit, the company now sends out a trained operator with each unit sold. This operator delivers the unit direct to the customer, and works with him for a full week, providing instruction in the operation of the mill.

Puritan Manufacturing Co., Omaha, which has been associated with Sedberry for the past 40 years, is working with the Sedberry company in designing new blending machinery, which will be ready in the near future.

Mrs. M. B. Sedberry, president, and Mr. Smith are now located in Tyler. A number of district managers have been added, extending Sedberry's sales force to the West Coast.

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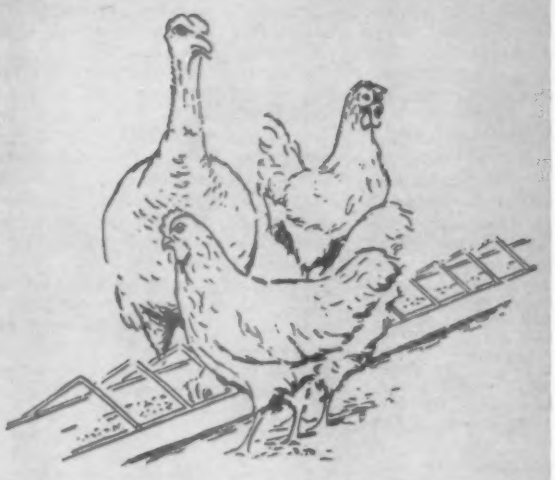

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"If" Factors in Outlook for West Coast Poultry Industry Discussed at Meeting

PULLMAN, WASH.—A panel of experts pointed to a bright future for the poultry industry in the Pacific Northwest at the Washington State College Poultrymen's Institute here recently, but tied a few "ifs" to the prediction.

Biggest "if" factors in the picture, they said, are feed costs, product quality, and a large year-around volume of products to be marketed.

Factors favoring the poultry industry, they said, include a growing population and economy pointing to a stronger market within the area for eggs, broilers and turkeys; a favored position in regard to the Alaskan market, and an ideal climate for poultry production.

A limiting factor that could hamper expansion of poultry production in the area is feed costs low enough to make broilers and turkeys competitive in price with those produced in other areas, they said.

Karl Hobson, Washington State College extension price specialist and one of the three panel members, said Washington-grown barley is currently helping to fill this need, but that the situation could be altered by a change in the wheat program. Removal of wheat allotments would cause an immediate shift back to wheat production from barley, he stated.

The growing corn acreage in the Columbia Basin was mentioned as a source of low-cost grain for poultry feed. M. Wayne Miller, Seattle, research director, Washington Cooperative Farmers Assn., another panel member, said his organization expects to get one fourth of the corn requirements for feed from Basin farmers this year.

The third member of the panel was Joe Dwyer, Olympia, director of the Washington State Department of Agriculture.

All three panelists agreed that labor costs would probably be scaled down by greater mechanization. They also stressed the market demand for a large, steady volume of rigidly controlled high-quality products must be met.

The job of the poultry serviceman was discussed by Dale C. Schlotzhauer, Kirkland, Heisdorf & Nelson Farms. Fieldmen must make a choice between service for many and free labor for a few, he said. He explained that this is the difference between showing the producer how to use a new device such as a debeaker or doing the work for him.

Contract Farming

A discussion of the effects of contract farming was given by Dr. Thomas I. Gunn, agricultural economist at WSC, who said stiffer competition for the home market itself has been one of the effects of contract farming on Pacific Northwest poultry producers.

Dr. Gunn said the Pacific Northwest is feeling the impact of contract farming in the increased competition of poultry shipped in from highly integrated production areas.

One way for producers to keep management decisions in their own hands, he said, is to "integrate from the bottom up." This type of horizontal integration means the combination of similar units of production by producers themselves. They limit their membership to those who produce for quality and are willing to stabilize output.

Bargaining associations are another way to meet the challenge of integration, he said. Through such associations, he said, farmers can negotiate the price of a given output of a high quality product.

At the same session, Reed Hansen, WSC poultry scientist stationed at the college's Western Washington Experiment Station, summarized latest research on the use of cages versus floors for layers.

He said individual cages show lower labor efficiency and are more difficult to mechanize economically than other types of housing. Hens also tend to lay about five less eggs per year in small cages than in litter floor houses, he said.

Mr. Hansen said that in Washington, individual cages are not being used extensively because of high cost. Two-bird cages, five-bird cages, community cages and litter floors are all being used with apparent success in the state.

Poultry Feeding

Dr. Leo Jensen, WSC poultry nutritionist, discussed feed and breed selection to cut production costs. He pointed out that feed comprises about 60 to 70% of the year's total cash outlay in any poultry operation.

Making sure that all feed purchased reaches the gizzard of the chicken can be an important factor in cutting costs, Dr. Jensen said. He pointed out that up to 10% of the feed purchased is lost from feeders on some farms. Rodents can rob feed bins of up to 50 lb. per rat per year, he said.

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crumbled feeds, and of improved types of feeders can reduce feed waste, he said. Cold chickens require more feed, and controlling temperature in the poultry house is another way to cut feed costs, Dr. Jensen said.

He summarized research showing that lightweight breeds require less feed for egg production, and fast-growing breeds less feed for broiler or meat production.

Use of locally-produced feeds to cut costs was also stressed by the WSC poultry nutritionist. He pointed out in this regard that WSC researchers have shown that the feeding value of Washington-grown barley can be markedly improved by either water treating the grain or by adding dry enzyme supplements to the feed.

Enzyme preparations are now available at a reasonable price and are being used extensively throughout the West to upgrade barley for poultry, he said.

Dr. James McGinnis, poultry scientist and chairman of WSC's poultry department, said antibiotics — especially some of the newer ones—promote faster growth of chicks and turkeys. Antibiotics have also increased the rate of lay in some flocks, especially those showing substandard production for one reason or another, he added.

Dr. McGinnis also reported that controlled studies made since 1950 have proved rather conclusively that the growth-promoting effect of antibiotics is due to the control of microorganisms in the bird's digestive tract. Loss of effectiveness of certain antibiotics after a number of years also indicates that the organisms develop resistance to the material.

C. E. Lampman, poultry scientist at the University of Idaho, said in a discussion of housing styles for poultry that the houses are getting wider and longer, and windows are becoming smaller and fewer in number. Some poultry houses have no windows at all, he said. Climate is controlled by fan ventilation.

Exhibit Space Available For APIA Convention

MONTGOMERY, ALA. — Exhibit space is now available for the seventh annual Alabama Poultry Industry Assn. convention at the Municipal Auditorium in Birmingham, Ala., June 8-10, 1959.

The convention will open with a general session at 2 p.m. June 2, and will close the evening of June 10 with a banquet at the Thomas Jefferson Hotel—the APIA convention headquarters.

Exhibit space may be reserved by writing to W. L. Walsh, APIA secretary, P.O. Box 567, Montgomery, Ala.

WORKER DIES IN FALL

CREVE COEUR, ILL. — Darrell Hornback, 22, fell 115 ft. to his death recently from the top of the new United Grain Co. elevator here. An employee of the construction firm erecting the building, he slipped through an open manhole.

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SPENCER KELLOGG & SONS, INC.
MINNEAPOLIS, MINN.
Always
in demand
for its quality
SPENCER KELLOGG'S
OLD PROCESS
LINSEED OIL MEAL
Year after year the demand for Kellogg's famous Old Process Linseed Oil Meal continues. Livestock feeders know from experience that it pays them to use this extra effective conditioner.
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WRITE FOR FULLY DESCRIPTIVE CATALOG
THE C. O. BARTLETT & SNOW CO.
6249 HARVARD AVE. • CLEVELAND 5, OHIO

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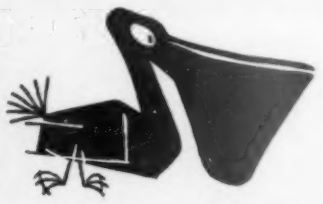
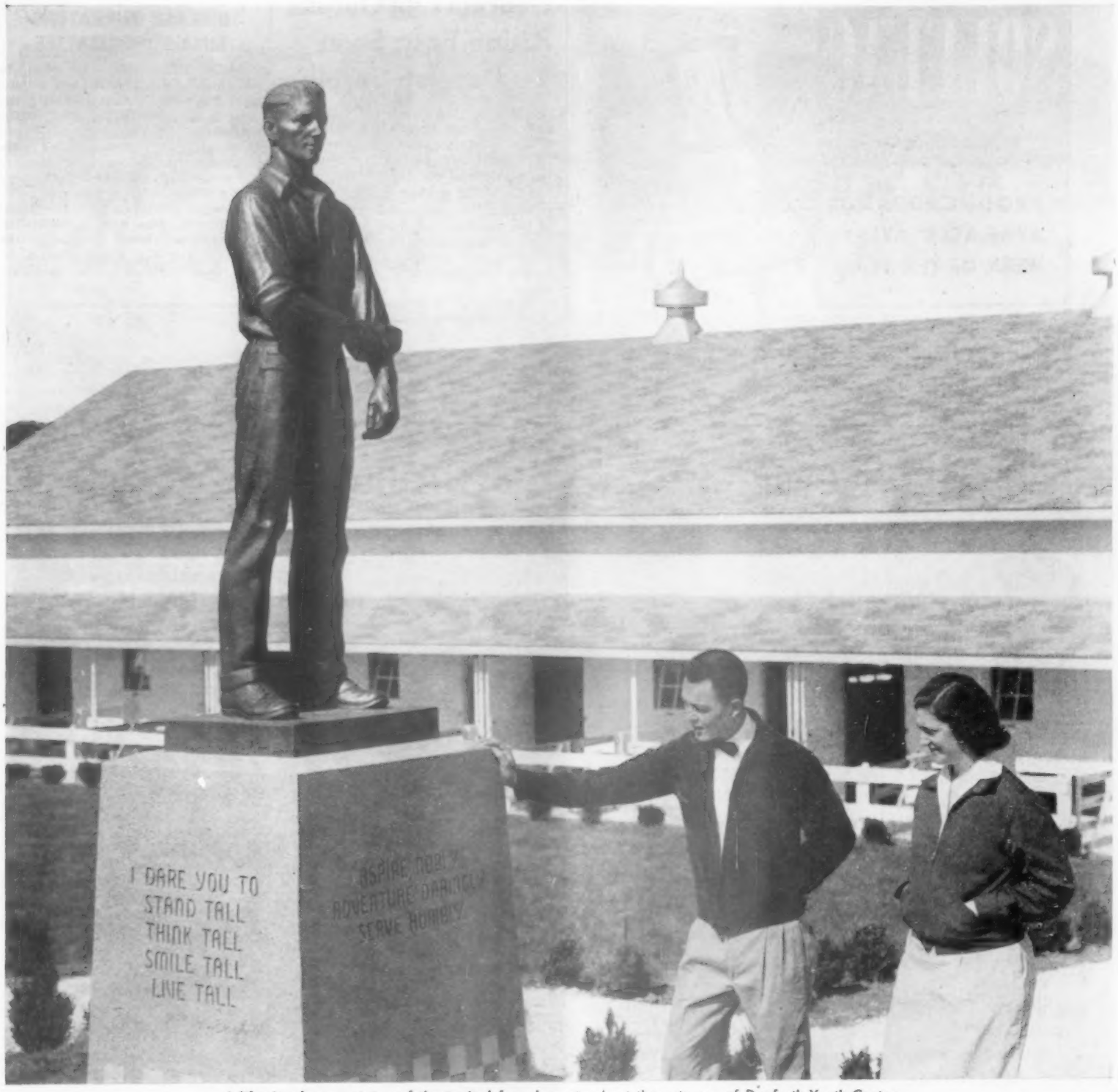

For Timely, Useful Industry Information
FEEDSTUFFS



A life-size, bronze statue of the typical farm boy, stands at the entrance of Danforth Youth Center.

Dedicated to Inspire Farm Youth

Danforth Youth Center, a memorial to William H. Danforth, founder of Ralston Purina Company, is dedicated to the challenge and inspiration of Farm Youth. It is the world's first research center created to serve young farmers exclusively.

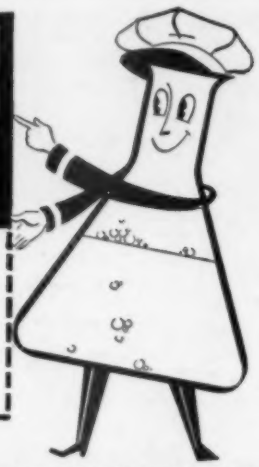
The Center perpetuates Mr. Danforth's challenge to "Live Tall, Think Tall, Stand Tall, Smile Tall." This is the philosophy of living he advocated to thousands of young people he knew and inspired.

The Youth Center is a place where farm youths can hold judging contests, field days and instruction sessions. It is staffed by specialists whose work, directed to the needs of farm youth, includes research on all major kinds of livestock shown by farm boys and girls.

By challenging and inspiring farm youth of today, the Center will, we sincerely believe, make a major contribution to successful agriculture of the future.

PURINA . . . YOUR PARTNER IN SERVING ANIMAL AGRICULTURE

SOLULAC
70% corn distillers solubles
30% corn distillers grains
PRODUCED AND AVAILABLE EVERY WEEK OF THE YEAR



GRAIN PROCESSING CORPORATION
MUSCATINE, IOWA Telephone AMherst 3-1321 TWX495
© 1957
Primary Fermentation Products
Riboflavin — Vitamin B-12 — GP-101, source of whey and other unidentified growth factors

Georgia Egg Output Rising Fast; Soon To Develop Surplus

ATHENS, GA. — Georgia poultrymen have been advised by a University of Georgia extension poultryman that a difficult period of transition may be ahead for them.

The reason is that Georgia is now producing an estimated 90 to 95% of the market eggs used in the state and will soon be shifting from a deficit-producing area to a surplus-producing area, according to Dewey McNiece.

"This phase of our industry is still growing rapidly," he said. "There was a 38.5% increase in egg-type chicks hatched in Georgia the first nine months of this year, compared with the same period a year earlier.

"The transition period from being a deficit-producing area to a surplus-producing area can often be a very difficult one," he said. The period of time from a temporary surplus to the production of enough eggs for good out-of-state markets "will be the hardest to cope with."

Georgia egg producers will then have to compete with other areas of the country. This, he said, will require more efficiency and production of a quality product.

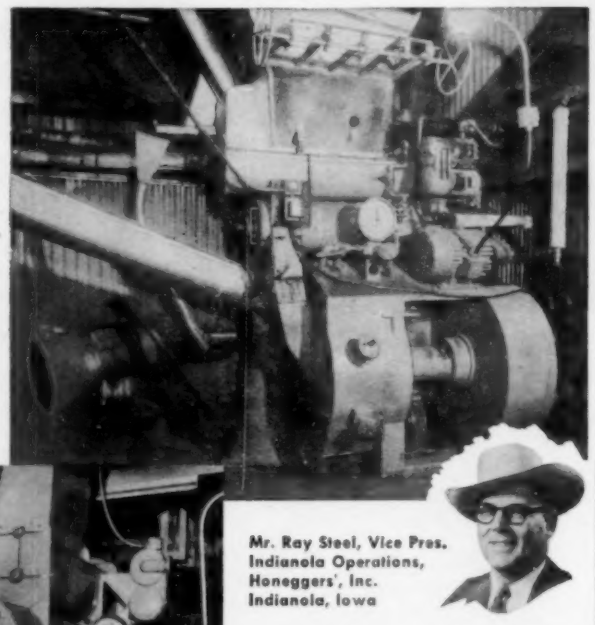
DISEASE THREATENS MISSISSIPPI CATTLE

JACKSON, MISS. — According to an announcement from the Mississippi Cattlemen's Assn., a cattle disease is threatening the state's $60-million cattle business. The announcement said the disease, called anaplasmosis, has driven some farmers out of the cattle business and caused heavy financial losses to others. The Mississippi Livestock Sanitary Board said it will soon have a technician trained to test blood samples for the disease. Now the samples must be sent to a research center in Maryland.

Proving the Versatility and Performance of

Wenger Multi-Duty PELLET MILLS

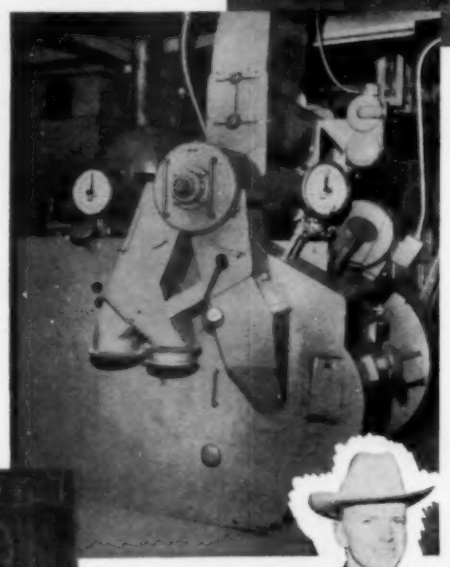
Although engineered primarily as a hard pellet mill, the Wenger Multi-Duty is exceeding expectations in every field of feed processing. For producing hard pellets (with or without liquids) Wenger blended mash feeds, and with Hi-Molasses pellet extruder available as an optional extra, the Multi-Duty represents the greatest advance in feed processing in many years.



FOR ECONOMY—
- in total equipment cost
- in man hours per ton of production
- in operation
- in liquid proportioning
- in floor space
- in installation costs
- in minimizing contamination hazards

No other pellet mill is the equal of the Multi-Duty.

Write for Catalog



Mr. Ray Steel, Vice Pres. Indianola Operations, Honeggers', Inc. Indianola, Iowa

Honeggers' 100 HP Multi-Duty Pellet Mill which is used in producing both hard pellets and Hi-Molasses pellets in their new mill at Indianola, Iowa.

Mr. Steele says "Our new Wenger Multi-Duty does even better than we had hoped for. I'm sure this machine is the answer to the need in the feed industry for a smaller, but still a more efficient feed manufacturing plant."

Mr. Larry Jenkins, President Texas Feed & Cattle Co., Kilgore, Texas

Wenger's 100 HP Multi-Duty Pellet Mill with built in liquid conditioning feeder for fats and molasses is the heart of their fine new mill.

Mr. Jenkins says: "We are obtaining optimum quality control in blending liquids in our Wenger Multi-Duty Pellet Mill with excellent tonnage and a minimum of fines."

Mr. Wendell S. Haley, Manager Ashland Cooperative Exchange Ashland, Kansas

Ashland is using a new Wenger 50 HP Multi-Duty Pellet Mill to make Hard Pellets and Hi-Molasses Pellets as well as molasses meal feeds.

Mr. Haley states that, "In my opinion the Multi-Duty is tops in performance and the Wenger Company is tops in service and 'follow thru'."

Wenger Mixer Manufacturing
SABETHA, KANSAS • PHONE 111
Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment.

Marshall Carpenter Joins Hegman Firm

MINNEAPOLIS — Marshall Carpenter, formerly with the International Machinery Development Corp., Minneapolis, manufacturer of the dry pellet mill, has joined Hegman, Inc., Minneapolis, as sales manager, according to Ralph Hegman, Jr., vice president of the feed handling and feed processing equipment firm.

In his new position Mr. Carpenter will supervise sales in a territory that covers Minnesota, North Dakota, South Dakota, Montana and western Wisconsin. He will also be responsible for developing markets for new products.

Before working with the International Machinery firm, Mr. Carpenter was with Superior Separator Co., Hopkins, Minn.

OPENS OWN OFFICE

PORTLAND, MAINE — Harry H. Horton, New York, who retired recently as traffic manager for the General Baking Co., New York, will open a transportation consultant's office in the Bank of Commerce Building here. An early advocate of bulk transportation of feeds, flour and other products, he will provide advice for small industries with transportation problems.

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Butler Chemical Company offers feed and mineral manufacturers a high quality defluorinated phosphate with a phosphorus content of 19% . . . a minimum 32% — maximum 35% calcium content and no more than .19% fluorine.

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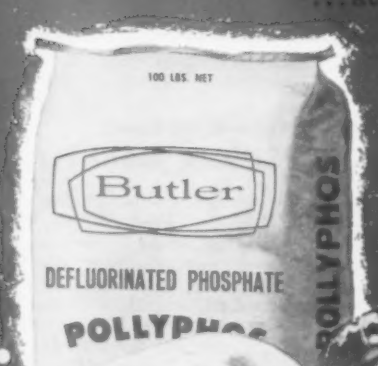
POLLYPHOS has been tested for biological availability . . . proven to be a highly available source of phosphorus. The Texture . . . the blending characteristics . . . of POLLYPHOS . . . make this product a most desirable source of phosphorus supplement for . . . use in formulating all types of livestock and poultry feeds.

low delivered cost . . . .

Butler Chemical Company offers you . . . POLLYPHOS . . . at a low delivered cost per unit of phosphorus to feed and mineral manufacturers located in the western half of the United States.



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WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7264—Poultry Feeder

Oakes Manufacturinug Co., Inc., has developed a new "deep trough" design into its "Poultry Chef" mechanical feeders, the company announced. The feeder is used with hanging feeders, floor trough installa-

tions and colony cages. According to the company, the unit delivers a full balanced formula through every foot of feed space, with sealed linkage construction. The linkage is above the feed level which eliminates picking up droppings, litter or feed waste. For more details check No. 7264 on the coupon and mail.

No. 7261—Equipment Brochure

FM Engineering Co., Inc., announces a four-page catalog brochure on its newest product "Auto-Medic." The Auto-Medic, according to the company, is a liquid proportioner that can be used in almost any instance. Some of the uses itemized in the brochure are: To medicate or vaccinate water for broilers and layers; to medicate water for all livestock; for wash-down in dairies and food processing plants; for disinfection and deodorization of hatcheries, brooder rooms and barns; for adding liquid fertilizer to water for household watering, and many others. For copies of the brochure, check No. 7261 on the coupon and mail.

No. 7263—Hammer Mill

The availability of a special hammer mill with a 26-in. rotor length has been announced by Sprout, Waldron & Co., Inc. According to the company, the design permits the continuous handling of sheeted rolls which are 24 in. in width. In addition to the wider feed throat and longer rotor, the mill is designed so that it can withstand 100% overload for varied lengths of time, the company said. Check No. 7263 on the coupon and mail to this publication for more details.

No. 7262—Custom Feed Milling Booklet

A 12-page booklet containing five articles on "Custom Feed Milling," which were written by Al P. Nelson, Feedstuffs special writer, have been published by Prater Pulverizer Co. The booklet contains articles on "Efficient Custom Feed Mills are Prospering," "Costs and the Results of Modernizing Custom Mills," "Grinding and Mixing Charges," "The Human Factor in Custom Milling," and "Individual Adaptations of New Mill Facilities." For copies, check No. 7262 on the coupon and mail it to Feedstuffs.

No. 7260—Cattle Health Product

A pink-eye and wound dressing containing two antibiotics, two sulfas and "NeoBOVOC" anesthetic, has been introduced by Merck & Co., Inc. According to the company, NeoBOVOC is recommended for treatment

of irritations and infections of the eye, such as keratoconjunctivitis (pink-eye) and as a wound dressing. The product comes in a 10-gram plastic squeeze bottle that permits the user to dust the medication into infected areas. For further information, check No. 7260 on the coupon and mail it to this publication.

No. 7259—Stone Detector

"Stone Sleuth," a protection system for detecting rocks and tramp iron in corn shellers, has been introduced by The Andersons. Named

distributor for the product was Seedburo Equipment Co., Chicago. The unit is an electronic device which listens for noises that are different from ordinary shelling, the company says. A contact-type microphone placed on the shelling drum feeds signals into an amplifier. Should the signals become more intense than normal the amplifier actuates a switch stopping the sheller motor immediately. The device has eliminated breakdowns and damage due to rocks, the company says. For details, check No. 7259 and mail it to Feedstuffs.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7190 — Feeding trial results brochure, Flavor Corporation of America.

No. 7191 — Trough-belt conveyor, Universal Hoist Co.

No. 7192—Grain roller mill, W-W Grinder Corp.

No. 7193—Vacuum barrel handling unit, Vac-U-Lift Co.

No. 7194—Grain fumigator, Seedburo Equipment Co.

No. 7195—Bulk-bag feed body, Henderson Manufacturing Co.

No. 7196 — Fourteen-hole laying nest, Oakes Manufacturing Co.

No. 7197—Peebles' 50-lb. red whey block, Western Condensing Co.

No. 7198—Bulk feed bins, Brock Manufacturing, Inc.

No. 7199 — Ball bearing attrition mills, Munson Mill Machinery Co.

No. 7200—Fall promotion displays, American Cyanamid Co.

No. 7201—Poultry health product, Pabst Brewing Co.

No. 7202—Worm control brochures, Rhodia, Inc.

No. 7203—Poultry disease book, Dr. Salsbury's Laboratories.

No. 7204—New series of pellet mill

Send me information on the items marked:

- ☐ No. 7259—Stone Detector
- ☐ No. 7260—Cattle Health Product
- ☐ No. 7261—Equipment Brochure
- ☐ No. 7262—Custom Feed Milling Booklet
- ☐ No. 7263—Hammer Mill
- ☐ No. 7264—Poultry Feeder

(PLEASE PRINT OR TYPE)

Others (list numbers) .....

NAME .....

COMPANY .....

ADDRESS .....

——— CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL ———

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dies, Sprout, Waldron & Co., Inc.

No. 7205 — Spring materials handling truck, Everlevell Co.

No. 7206—Bulk feed handling report, Dorsey Trailers.

No. 7207—Seaweed feed additive, Algit, Inc.

No. 7208—Storage structure booklet, Sprout, Waldron & Co., Inc.

No. 7209—Feed blender with meter, Barnard & Leas Manufacturing Co., Inc.

No. 7210—Exhibit display, Federal Displays, Inc.

No. 7211 — Range feeding cyclone attachment, Sprout, Waldron & Co., Inc.

No. 7212 — Industrial fan bulletin, Day Co.

No. 7213—Mobile floor crane, Vanguard Engineering Co.

No. 7214—Magnetic drum separators, Eriez Manufacturing Co.

No. 7215 — Injectable antibiotics, Merck & Co., Inc.

No. 7216 — Grain fumigant literature, The Dow Chemical Co.

No. 7217—Nesting material folder, Stone Mountain Grit Co.

No. 2053—New bag concept, Bemis Bro. Bag Co.

No. 7218—Case imprinting machine, Rotary Imprinters, Inc.

No. 7219—Formula changeover control system, Richardson Scale Co.

No. 7220—Packing or bagging scale, Thayer Scale Corp.

No. 7221—Grain conveyor literature, Vac-U-Vator, division of Dunbar Kapple, Inc.

No. 7222—Corn grader technical bulletin, Sprout, Waldron & Co., Inc.

No. 7223 — Automatic self-feeder for hogs, Baughman Manufacturing Co.

No. 7224—Cattle health product, Ciba Pharmaceutical Products, Inc.

No. 7225—Conveyor trough, Screw Conveyor Corp.

No. 7226—Portable feed mixer, Green Isle Manufacturing Co.

No. 7227—Animal health product, the Dow Chemical Co.

No. 7228—Used lift truck buying and trading service, Clark Equipment Co.

No. 7229—Liquid tote tanks, Tote System, Inc.

No. 7230—Weighing and filling machine, Richardson Scale Co.

No. 7231—Portable crop dryer, the Mathews Co.

No. 7233—Poultry nutrition booklet, Western Condensing Co.

No. 7234—Poultry, hog equipment list, the Brower Manufacturing Co.

No. 7235—Grain dockage scale, O. B. Armstrong.

No. 7236 — Bag handle concept, Hudson Pulp & Paper Co.

No. 7237 — Cyclonic feed mixer, Barnard & Leas Manufacturing Co.

No. 7238—Hog health handbook, Dr. Salsbury's Laboratories.

No. 7239—High-speed sewing head, Union Special Machine Co.

No. 7240—Feed supplement, Peter Hand Foundation.

No. 7241—High-capacity grain dryer, Behlen Manufacturing Co.

No. 7242—Scale data sheet, Richardson Scale Co.

No. 7243—Steel building literature, Butler Manufacturing Co.

No. 7244 — Formula feed folder, Sohio Chemical Co.

No. 7245 — Materials handling units, Daffin Manufacturing Co.

No. 7246—Poultry disease booklet, Sterwin Chemicals, Inc.

No. 7248 — Animal health folder, Merck & Co., Inc.

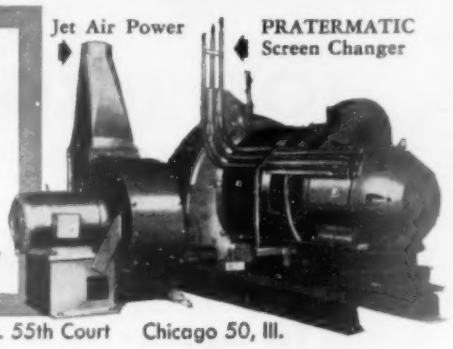
No. 7249 — Poultry health folder, Merck & Co., Inc.

No. 7250—Automatic egg counter, Hawkes Cage System.

No. 7251—Poultry de-winger, Dakota Ranches.

No. 7252—Hammermill literature, Prater Pulverizer Co.

FOR 1958 and EVERY YEAR MAKE IT BLUE STREAK Prater



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All Feed Ingredients
A Nationwide Service from the Heart of America

KAFIR & MILO
Largest Dealers in Southwest
MID-CONTINENT GRAIN CO.
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KANSAS CITY, MO.

Egg Shell Quality begins with EGGSHELL BRAND Oyster Shell

Poultrymen are being told the EGGSHELL BRAND story in advertisements and point-of-purchase displays wherever EGGSHELL BRAND Oyster Shell is sold.

Take advantage of this complete promotional program. Sell the really digestible, soft reef shell that has become the standard of the industry.

EGGSHELL BRAND OYSTER SHELL
a product of
OYSTER SHELL CORPORATION
BALTIMORE, MARYLAND

NOW SELLS 2 WAYS!

Win more customers...more repeat sales with Blatchford's 2 Treat-Formulated Dog Rations

1 Blatchford's ESTABLISHED IN 1800

CRUMBLES

Moistureizes immediately for instant feeding!

Combines Crumbles and Kibbles in crumble-ized form for quicker, easier *instant* mixing with liquids, extra flavor, chewy firmness! (has extra flavor, extra appetite appeal in dry form, too!)

2 Blatchford's ESTABLISHED IN 1800

REGULAR

Crunchy delicious for delightful taste variety!

Combines Kibbles and Pellets for taste-tempting flavor, extra appetite appeal in easy-to-feed dry form. (mixes easily with liquids and table scraps, too!)

LOOK FOR THIS TAG →

Now! More "Buy-Appeal" for Every Dog Owner!

Now, with new Blatchford's CRUMBLES and REGULAR DOG-RATION you can give owners the kind of feeding they like best for their dogs. You'll satisfy more customers—make more repeat sales, too. Because dogs love the extra flavor, extra appetite appeal of *Treat-Formulated* DOG-RATION—keep coming back for more. And dog owners like the savings they make! Low-cost, premium quality DOG-RATION is a scientifically blended, balanced diet for maximum health and good spirits.

Ask your distributor for new CRUMBLES and REGULAR Blatchford's Treat-Formulated DOG-RATION, now available in both 5 lb. and 25 lb. bags. Or write Blatchford's today. Dept. 2118

Blatchford's ESTABLISHED IN 1800
Main Plant and Offices: WAUKEGAN, ILL.
Midwest Division: Des Moines, Iowa
West Coast Division: Nampa, Idaho

JOE BROOKS

BY AL P. NELSON

Records Tell the Story

About an inch of snow had fallen on that fall afternoon when an automobile turned in near Joe Brooks' office. A tall, grey hatted man in brown storm coat got out of the car, bent his head against the wind and went into the big sales room.

"Hi, Phil," greeted Joe Brooks warmly, recognizing Phil Reddick, a dealer from a small town in the next county. Joe had met Phil at several feed trade conventions and they had had many a pleasant chat.

"Joe," said Phil, stomping the snow from his feet, "you told me at the last convention that if I got over here some day you'd show me your scrapbook on sales promotions. Got time to do it now?"

"Sure, come into the office."

Joe led the way into his roomy office, introduced Phil Reddick to Rusty Hagen, the runty bookkeeper, and motioned the dealer to a chair.

Reddick opened his storm coat, lighted a cigarette and crossed one leg over the other. By this time Joe had taken out a big scrapbook and opened it on the desk near Reddick. He turned the pages, showing Reddick how he saved newspaper ads, direct mail letters, tickets, etc.

Book Is a Time Saver

"This book has been invaluable to me many times," Joe said. "It saves me thumbing through a stack of ads and letters each time I want to look up something about publicity, advertising or sales promotion. It's all pasted in here, along with the dates when I used the material."

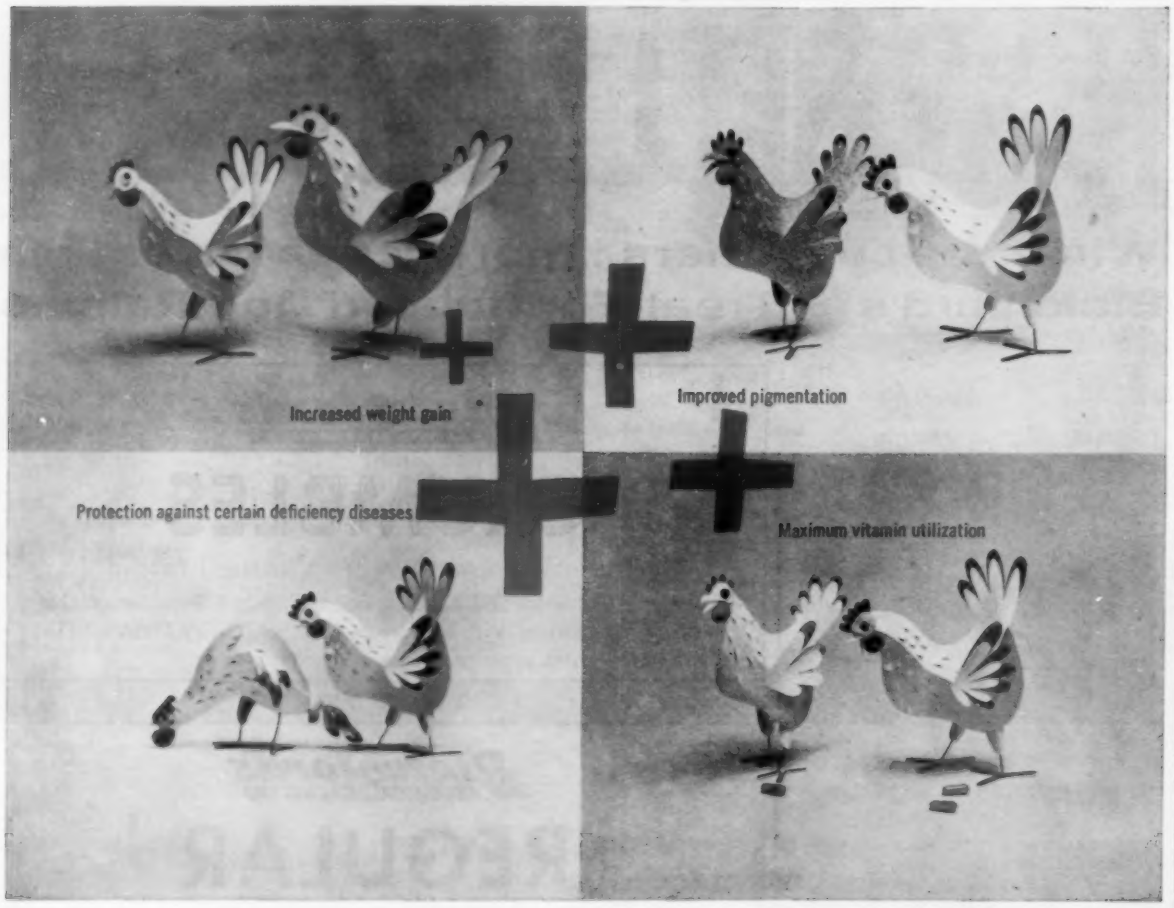
Phil Reddick looked at the pages carefully. "That's an improvement on my ad filing system. I keep my published ads in a yellow manila folder, one for each month. But the ads slip around and I always have to unfold them and fold them again when I sort them out of the folder. Then, too, I haven't kept a file of letters I send out, or the tickets for promotions. I oughta do that."

"Every dealer should," Joe said. "Believe me, the right kind of filing system saves time and promotes efficiency, Phil. A dealer's time is worth lots of money these days. I figure if I waste half an hour looking for an ad or letter I used months ago, I'm adding heavily to my cost of doing business. So I have this ad book, and it's big enough so that it never gets lost."

Reddick chuckled. "I've got to revamp my ad filing system. I can see that. But, Joe, do you know if any of your sales promotion ads pay in actual sales? Got anything on that?"

A Record of Sales

Joe Brooks nodded. He reached for a card index file on one corner of his desk, thumbed through it, and took out a white card. "I keep as much of a record as I can on each sale we put on, Phil. For example, I have a January clearance sale on some items each year. Most merchants do. The public, and the farmer is included, expects January clearance sales to have



Your feeds supply these extra performance factors when they contain **Tenox BHT** AGRICULTURAL GRADE

an Eastman antioxidant for feeds

Here are four sound reasons for incorporating Tenox BHT-Agricultural Grade into your feeds.

Tenox BHT protects the all-important vitamin balance you build into your feeds.

Tenox BHT improves pigmentation in poultry by increasing the utilization of Vitamin A.

Tenox BHT increases weight gain by maintaining maximum nutritional content right up to the time the feed is used.

Tenox BHT protects poultry against certain deficiency diseases.

Tenox BHT-Agricultural Grade is free-flowing, non-dusting, non-caking. Its particle size is similar to that of other feed ingredients. It blends quickly and does not separate during handling or storage.

Tenox BHT-Agricultural Grade was developed to meet the specific needs of poultry feed manufacturers. It is the result of information provided by feed manufacturers combined with our own extensive knowledge of antioxidant performance.

Build extra performance into your feeds by specifying the antioxidant specially made by Eastman for feed use...Tenox BHT-Agricultural Grade. Tenox BHT-Agricultural Grade is available from leading distributors throughout the country. To find out how you can use this antioxidant in your feed formulations, write today to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of the Eastman Kodak Company, KINGSPORT, TENNESSEE.

Tenox BHT-Agricultural Grade available in 2 forms

- Tenox BHT (Conc.)-Agricultural Grade which may be added to your own diluent.
- 25% Tenox BHT Premix, containing 25% BHT on a nutritive cereal carrier.

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City, 260 Madison Ave.; Framingham, Massachusetts, 65 Concord St.; Cincinnati, 1813 Carew Tower; Cleveland, 13212 Shaker Square; Chicago, 4200 Dempster St., Skokie, Illinois; St. Louis, 10 South Brentwood Boulevard; Houston, 1300 Main St. West Coast: Wilson Meyer Co., San Francisco, 333 Montgomery St.; Los Angeles, 2060 South Garfield Ave.; Portland, 520 Southwest Sixth Ave.; Salt Lake City, 73 South Main St.; Seattle, 318 Queen Anne Ave.; Denver, 851 North Broadway; Spokane, 422 West Riverside; Phoenix, 111 West Osborn Road. Canada: P. N. Seden Co., Ltd., Montreal, Quebec, 2143 St. Patrick St.; Toronto, Ontario, 41 Advance Road.

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bargains, so why not cash in on this buying desire?"

Joe went on. "This card on my 1958 January clearance sale shows that I spent $72 more on advertising and promotion than the previous year for a similar January period, but we were able to do 6% more business. And we did a mighty good volume the year before during the same period."

"But how can you say the increase came from the sale?" asked Reddick. "The increase might have come just from a seasonal rise in business."

"Our January clearance sale ran for 10 days," Joe replied. "This record card shows me that we did more business on those 10 days than we did any other 10 days of the month. To me that means that our ads and promotions paid off. We had a carnival atmosphere in the store, with banners, extra spotlighting, barrel displays of cat and dog items, etc. And we gave doughnuts with each cup of coffee from 9 a.m. until 10:30 a.m. every day. Farmers like to be sociable and visit. My store traffic was high those 10 days of the sale."

"And you keep records like that of each sale, Joe?"

Joe Brooks nodded. "I'm afraid not to," he admitted. "I've got to know if a certain sale pulls well each year and how much. Otherwise, I might have a sale with lots of traffic and no increase in volume. Sales are what counts. If I get plenty of traffic for a sale but no increase in business, I know display or store selling was probably at fault. So I work on that."

Phil Reddick whistled. "Joe, the average feed dealer doesn't keep records like that. He doesn't seem to have the time."

"I didn't think I had the time, either, Phil, until I began checking on some of the results of my sales. I used to think it was more important for me to be out helping the men handle customers and load feed than being in here in the office. But I was wrong. A business is only as good as its management. And a manager must manage. He's got to know what he's doing every minute of the business day, and if he is making a profit on what he's doing. If he doesn't know that, then he's not as efficient as he could be."

Business Grows

"I think you're right, Joe. Now, I can see why your business is growing. You've got one big feed mill, a branch at Endeavor and now you've got a mobile feed unit, too. This record keeping discussion is helping me a great deal. I'm going to revamp my system."

"And I've learned a lot from you," Joe said warmly. "I tried your system of going out myself with the weighing device once a week and I've picked up a lot of business, just as you said. When you weigh farm animals, the feed gains are apparent to the farmer. And the dealer should do it himself, for that's when he can talk to the farmer and often get him secured as a regular customer."

Phil Reddick rose to go. "Joe, you and I have talked over feed retailing problems a lot in the years we've been in business. If I share an idea with you and you give me one then each of us has two ideas instead of one. You and I gain every time."

Joe nodded. "I wish more feed dealers would see it that way. We are really not in competition with each other. We really should be working together in groups to do a better job telling and showing the farmer what a better production and profit job a fully balanced feed program can do for him. If we could stick to a long range promotional plan like that, there would be more volume for all efficient feed men."

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Architect's rendering of the new Bagpak plant in Litchfield, Ill.

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The Success Story of One Customer...

10 bag order in 1948, 10,000* bag order in 1958

*immediate shipment

Ten years ago this firm placed their first order for Ultra-Life Products—10 bags of 100 pounds each. Their business has grown steadily over the years and, as this recent order shows, they have enjoyed great success with quality Ultra-Lifed Feeds.

The 10,000 bag, $174,000, order for immediate shipment, came just ten years after their first 10-bag order. The Ultra-Life Products in this shipment will supply vitamin and mineral fortification to manufacture the feed required by 660,000 laying hens for one year, or 10,000,000 broilers for nine weeks, or 33,330 dairy cows for one lactation, or to fatten 2,222,000 hogs, or feed out 2,380,700 steers.

Quality products—outstanding services—keep Ultra-Life and Ultra-Lifed Feed Manufacturers ahead of competition. That's why, year after year, sales of Ultra-Life Products surpass the previous year—in 1958 a big 20% increase over 1957! Go the Ultra-Life way to build up your feed business. Write today for complete facts.

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Write Us for Samples and Prices
MINNESOTA SPECIALTY CO., INC.
121 N. 4th St., Minneapolis, 1, Minn.

BULK HANDLING

(Continued from page 16)

ston Purina Co., St. Louis, and a member of the production school committee. Mr. Carlson worked with the Clark Equipment Co. and the AAA Equipment Service Co., St. Louis, distributor of Clark & Ross industrial trucks. Presiding over the demonstration was Loren Burns, and explaining the system was Steve Ragsdale of AAA Equipment. (Also see accompanying illustrations.)

Mr. Ragsdale explained that a Clark-Ross straddle carrier is used, with the vehicle encompassing the load. This unit has been used in the lumber, steel and other industries to pick up, carry and set down materials. The unit can carry 50,000 to 60,000 lb.

For feed, one-ton steel bins would be used to hold the feed. A "milk bottle" approach is used in the system; that is, the unit would take full containers to the farm and bring back empty ones.

At the filling point, the bin is deposited on an "A" frame, which allows the bin to be tilted. Then when the hatch is opened, the bin can be completely filled. At the farm, the bin also can be set on an "A" frame. It can discharge into any type of system through slide doors on the slide. The tilt of the bin allows it to clean itself.

The bins could be stacked up in the mill. A forklift truck can be used to handle the bins at the mill. Then the straddle carrier takes over. Mr. Ragsdale explained that it could drop off one or more bins at one point, picking up empties, and then go on to another farm, repeating the same procedure. The device can be designed to carry as many bins as desired. At the farm, the carrier could set the bins on "A" frames. The mechanism which holds the bins is designed so that as many bins as desired can be set down or picked up. Operations are handled by the driver sitting atop the carrier. The bin-holding part of the unit could be 40 ft. long.

Mr. Ragsdale said the carrier would travel at speeds up to 60 m.p.h. on the road and would travel over rough terrain. The smallest unit costs $7,500 to $8,000. Bins are expected to sell for around $100.

The unit has not yet been used in the feed industry, Mr. Ragsdale pointed out. Experience with the carrier will be sought.

BAG-TO-BULK OPERATIONS: One of the demonstrations at the bulk sessions showed bag-to-bulk operations. William Nugent of the Burlap Council, New York, pointed out that bags are still used in the feed industry to a great extent. A demonstration was then carried out, showing how 100-lb. burlap bags (which can be reused after cleaning) can be used to carry feed from mill or dealer to the farm by truck. Then the bags are emptied into a mechanical or pneumatic conveying device which moves the feed in bulk into the farmer's bins. This, said Mr. Nugent, is an economical and practical way to handle bulk. (Also see accompanying illustration.)

BAG DROP TESTS: Loren Burns of Mel Miller & Co., Kansas City, the production school coordinator, was master of ceremonies for a num-

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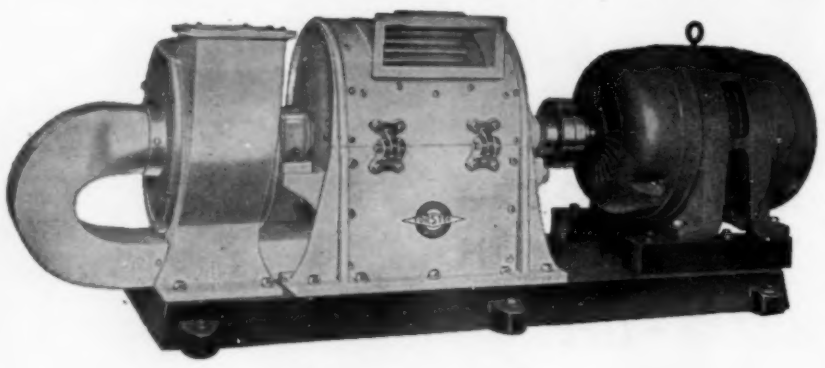

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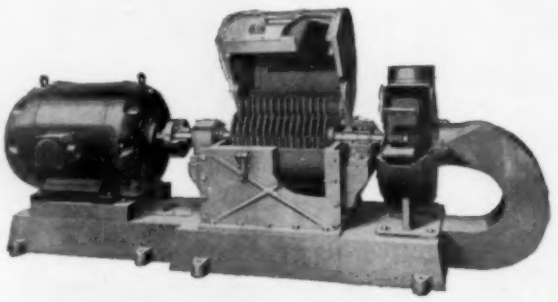

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ber of demonstrations at the school. In one of these, he told of the use of extensible paper in bags. The demonstration showed how a paper bag of normal construction will break after being dropped a certain number of times. The extensible paper bag, however, did not break even after being dropped a large number of times.

QUESTIONS AND ANSWERS: A part of the main production school sessions was a question-and-answer period moderated by J. D. Johnson, General Mills, Inc., Minneapolis, production school committee chairman. Taking part were speakers, committee members and others. Answering questions on bulk handling and other subjects were Bill Briggs, Spartan Grain & Mill Co., Spartanburg, S.C.; M. M. Noxon, Nutrena Mills, Inc., Minneapolis; Marion Kloster, General Mills, Inc., Minneapolis; Ed Brackney, Jones-Hettelsater Construction Co., Kansas City, and Cliff James, Richard Muther & Associates, Kansas City. Following are some of the comments and information offered by panel members:

Complete mixing in a batch mixer can often be obtained in 3½ minutes . . . In weighing bulk feed, small automatic scales on the lines can be used if there is not a truck scale near where the truck is being loaded . . . Elbows near the top of bulk bins will help prevent condensation . . . In handling bulk pellets or crumbles through a mill or bulk relay station, ½ to 1% is a good average in the way of shrinkage . . . The minimum volume for a bulk distribution station or warehouse would vary greatly, depending on a particular situation.

Some mills successfully handle all ingredients by air, including abrasive type materials . . . Opinion on this varies, but some operators spout mash to the up side of a leg and pellets or crumbles to the down side . . . Tote bin plans are available from various manufacturers or fabricators; forklift truck companies can offer suggestions . . . In most cases, there will not be separation of ingredients in batch mixing when mixing time is 3 or 4 minutes up to 7 minutes . . . One way to check on separation is to get 25 samples from the mixer at different times between 3 and 9 minutes and then analyze the samples. Usually, there is no trouble between 3 and 6 minutes.

A way to sample for fines is to pass a bucket through a stream of feed quickly. A probe doesn't work because the pellets break up . . .When finished feed is handled pneumatically, there is not much change in moisture content, although there may be a slight loss of moisture. Loss is lessened with heavier loading of the air stream.

In handling bulk molasses feed, there will be trouble if the feed has more than 10% of molasses, especially if it is handled through a screw conveyor. It also sticks to belts . . . Some mills weigh all trucks loaded with sacked feed to verify the weight of the load or order . . . For bulk trucks, some use pneumatic unloading because there are places where it is necessary to get the feed from truck to bins. If one does not have such problems, mechanical systems are all right and cost less.

It is difficult to state a practical percentage of fines in bulk pellets or crumbles because of differences in feeds of different composition . . . If a pellet tests 8½ lb. in a hardness test, it should stand up all right.

New Method Found to Give Ruminants Cobalt

BERKELEY, CAL.—A University of California scientist has come up with a unique method of administering cobalt to sheep and cattle suffering from a cobalt-deficient diet.

A single pellet containing cobaltic oxide is pushed down the animal's throat with a drenching gun. The pellet remains in the ruminant's forestomach, giving off continuously the minute amounts of cobalt needed by rumen bacteria.

The cure was suggested by Dr. Perry R. Stout, director of the Kearney Foundation of Soil Science at the University of California, during his tenure of a Fulbright Fellowship in Australia.

Cobalt deficiency is widespread in Australia, New Zealand, South America, South Africa, England, and certain well-leached areas in the U.S. such as Minnesota, Wisconsin and Florida.

A report from the University of California points out that animals on a cobalt-deficient pasture lose their appetite and waste away; on a diet of Harding grass low in cobalt they often develop phalaris staggers, an incurable nervous disorder. Attempts to prevent this deficiency, including cobalt fertilization of the pasture or frequent drenching of the animals, have proven costly and time consuming.

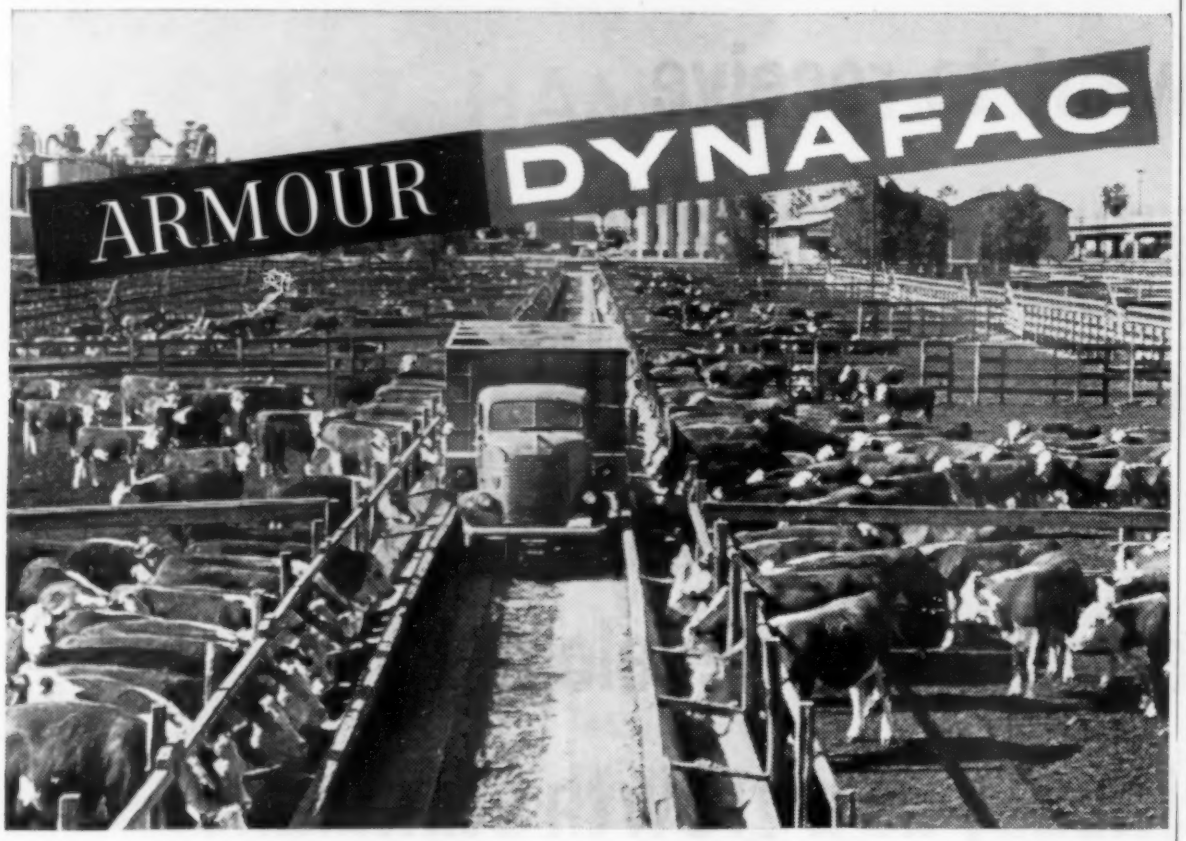
To make the corrective pellets, cobaltic oxide is mixed with clay or powdered iron, and the mixture is baked at 1,500-1,800 degrees F.

The university report stated that only under unusual circumstances is the pellet spit out or made ineffective by a cover of calcium phosphate. In one Australian experiment, 1,800 sheep were treated and 98% or more of the animals were protected from the staggers disease.

During the first year after the introduction of the pellets, 1 million of them were sold to Australian sheepmen.

TO BUILD NEW OFFICE

ELDORADO, WIS.—John Hall has moved his office to the rear of his feed mill building here preparatory to erecting a new office building on the old site.



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DR. W. R. GRAHAM, JR. received his Ph.D. in nutrition at the University of Toronto, Ontario, Canada. "Dick" joined The Quaker Oats Company in 1941 and was promoted to Director of Research in 1949.

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"The Quaker Oats Company has been research conscious for several decades. The first of our research farms was started thirty-five years ago. Today, we operate two modern research farms, an ultra-modern laboratory, and several practical research units throughout the country.

"It is our job to formulate and produce modern Ful-O-Pep Feeds that will obtain maximum results at minimum costs. At one time, we could do this by trial and error research. Today, our research workers must study results obtained by scientists throughout the world to obtain the most recently developed principles underlying feed economy.

"We have in the new John Stuart Research Laboratories in Barrington, skilled manpower and excellent facilities to do top quality research on foods, organic chemicals, and pet foods, as well as feeds. This superior equipment and expert advice could not be justified if we were in the feed business alone. These assets are important in the maintenance of a position of leadership in the feed industry.

"Many different ingredients can be used to formulate top quality feeds. The best choice can only be made when the forces of research, market forecasting, purchasing, milling, and product control are in full use. These Quaker has and these we use in the production of Ful-O-Pep Feeds of uniform quality.

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MACHINERY FOR SALE

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jeffreson City, Mo.

FOR SALE—ENCLOSED MOTORS; RICHardson Scales; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

1955 B-L MILL ON FORD 700 TRUCK, molasses blender and big mixer. Excellent at $4,500. E. R. Schrock, Fisher, Ill.

CHAMPION MOBILE GRINDER AND mixer units. Champion Portable Mill Co., 2105 Como Ave., Minneapolis 14, Minn.

PACKAGED FEED MILL PRESENTLY IN operation with integrated heated molasses blender. Priced to sell. Reply Ad No. 4301, Feedstuffs, Minneapolis 40, Minn.

PELLET MILLS, 50 H.P. CALIFORNIA, with coolers and crumblizer; also Richardson Bagging Scales, animal fat tanks and molasses units. Ray Jones, Box 326, Benton, Ill.

SCHUTTE HAMMER MILL, 30 H.P., ENclosed 3-phase motor, little used, $1,700. Howe Hopper Scales, 3,000 lb. capacity, $900. Spearin, Salisbury, Md.; Tel. PI 9-7512.

FOR SALE—FEED MILL IN MINNESOTA. Well established in good farming territory. Equipped with hammermill, burr mill, sheller, mixers and bulk set up. Selling because of death. Address Ad No. 4306, Feedstuffs, Minneapolis 40, Minn.

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MACHINERY FOR SALE

IOWA PORTABLE FEED MILL WITH molasses unit on 1957 Ford truck. Donald Danneman, R. R. 5, Muscatine, Iowa.

SIDNEY NO. 347 SEED AND GRAIN cleaner with 40 screens, 9x18 three pair high roll; Blue Streak 6-A-C hammer mill with crusher-feeder, 75 H.P. direct connected motor; Calking 5-30 slurry treater; Gibson oat crusher, 85 bu. capacity. Write Ad No. 4250, Feedstuffs, Minneapolis 40, Minn.

AERATION FANS—5 TO 40 H.P., HIGH efficiency backward curve, non-overloading centrifugal type. Immediate shipment from our Fairmont, Neb., factory. Wheels and casings by American Blower, Buffalo Forge and Ilg. Write for price list and specification sheet. A-C-E Supply and Equipment Co., Inc., P. O. Box 540, Salina, Kansas.

BAUER NO. 182 SERIAL NO. 18492 MILL complete with dust collector, magnet, screens, on base with 60 H.P. Fairbanks-Morse 3,600 R.P.M. motor, Frame RS 405-S, Serial No. 572076. Good condition. Also have Bauer Attrition Mill complete with two 15 H.P. Wagner Motors, type BP, Model 17 T. Equipment available now, priced right. Phone or write Miami Feed & Grain Co., Sidney, Ohio.

RICHARDSON AUTOMATIC SCALES — One G-100 with G-72 air shaker. One G-50 all electrically operated. Two Schutte 47 Hammermills. One Wee Scott Titus 36 H.P. high pressure boiler. One York Shipley 15 H.P. low pressure package boiler. Union Special 80600 sewing machines. No. 7 all-steel Snappy shaker. Bar-Nun sifter. Drawers 2,000 and 1,000 lb. Dial Hopper scales, etc. Honegger-Hanley Mills, Inc., Mansfield, Ohio.

NO. 3 SW JAY BEE MILL COMPLETE with base, coupling, magnet, screens, dust collector, pipe, 50 H.P. General Electric 3,600 R.P.M. motor with No. 39 Nickle crusher-feeder. Good condition. In service about four years. Also one grain drier No. 400 Habco Batch Drier complete with 15 H.P. motor General Electric and 7½ H.P. General Electric motor, gas fired, capacity rated 400 bu. In service one season, good condition. All equipment in service now. Write or phone Johnstown Elevator Co., Johnstown, Ohio.

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SALESMEN WANTED—MEN CALLING ON feed dealers and elevators to carry well-established calf milk replacer as side line. Top commissions for the right men. Several established territories open. Write Box 5020, Minnehaha Station, Minneapolis, Minn.

MAJOR MANUFACTURER OF BULK FEED delivery units needs aggressive, personable salesman to sell in central Midwest territory. Locate around central or southern Illinois. Salary plus commission. Car and travel expenses furnished. Paid vacation, insurance program, and other fringe benefits. Feed industry, truck or comparable sales experience desirable. Address Ad No. 4266, Feedstuffs, 612 Board of Trade Bldg., Kansas City 5, Mo.

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GENERAL SALES MANAGER AND NUtritionist desires change. Successful background. In middle 30's and a college graduate. Address Ad No. 4299, Feedstuffs, Minneapolis 40, Minn.

EXPERIENCED SALES MANAGER WITH proven ability to organize, train and direct successful sales force. Good writer. Ability to create and promote programs that sell. Degree in animal husbandry. Best references. Address Ad No. 4265, Feedstuffs, Minneapolis 40, Minn.

FEED SALES MANAGER WITH SOLID big-company background in all phases of feed merchandising seeks connection with medium-sized firm. Very strong in advertising, promotion, sales training. Best references. Salary open, will relocate. Address Ad No. 4309, Feedstuffs, Suite 3214, 551 Fifth Avenue, New York 17, N. Y.

NUTRITIONIST DESIRES POSITION IN livestock or feed industry with production or with research. Bachelor's degree in animal husbandry and master's in animal nutrition. Considerable cattle feeding and farming experience. Two and one half years' experience teaching agriculture. Age 31. Married. Prefer Midwest or Western location. George Breniman, Windsor, Colo.

CAPABLE, AGGRESSIVE MAN, 10 YEARS' experience in agricultural selling at all levels. Have served as district supervisor for national organization for two years. Seek to join aggressive, growing company which needs profit minded sales development. BS degree in animal husbandry. Married, willing to travel and relocate. Address Ad No. 4293, Feedstuffs, 551 Fifth Ave., New York 17, N. Y.

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ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 2, Md.

WANT TO BUY—ONE 40 TO 50 H.P. UPright Boiler. Must be in good condition. Hermansen's Roller Mill, Gunnison, Utah.

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FOR SALE — GRAIN ELEVATOR AND feed mill. Inquire Woodhull Co-op. Grain Co., Woodhull, Ill.; Phone YEllowstone 4-3711.

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8—Sprout-Waldron No. 227 Perfect Circle Sifters, 2 sieves, each	$ 500.00
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1—75 H.P. G.E. motor, 900 R.P.M. 220/440, TEFC, explosion proof	1,250.00
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We have large stock of flour and seed mill equipment in our Baltimore warehouse. Please ask for list or visit with us.

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EXCELLENT SIDE-LINE OR FULL TIME item for salesman selling to feed, grain, farm equipment dealers and farmers. Liberal commissions. Replies will be held confidential. Write Doane Agricultural Service, Inc., St. Louis 8, Mo.

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Full time or sideline for textile bags, both new and reconditioned. Salary commensurate with ability. All replies confidential. Contact

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ACCOUNTANT WANTED—MUST BE TOPS in knowledge feeds, credits, etc. Write or phone Harry Levin, Seed-Feed Supply Co., Chattanooga, Tenn.

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PROFITABLE IDEAS FOR DEALERS IN THE CASH REGISTER

Former USDA Chief to Speak At Iowa Meeting

AMES, IOWA—Claude R. Wickard, U.S. secretary of agriculture from 1940 to 1945, will be one of the panel members at the Midwest Swine Marketing Conference here Dec. 5. The Iowa Swine Producers Assn. is the conference sponsor.

Dr. Lee Kolmer, Iowa State College livestock marketing specialist, general chairman for the conference, said recently the other panel members will be:

R. K. Buck, Waukee, Iowa, hog producer; Dr. W. W. Cochrane, professor of agricultural economics at the University of Minnesota and now visiting professor of economics at the University of Chicago; E. R. Kiehl, head of the agricultural economics department at the University of Missouri; Carl C. Malone, Iowa State College farm management and public affairs specialist, and Dr. Kolmer.

C. A. McGinnis, president of the Ontario Swine Producers Assn., Toronto, Can., will speak just before the panel discussion. His talk will be on "Hog Marketing and Bargaining Power in Canada."

At the morning session Dr. Cochrane will discuss the question, "Can Midwest Hog Producers Gain Bargaining Power in the Market?" Prof. Kiehl will follow with a report on "Market Structure and Hog Marketing." Mr. McGinnis' report on the Canadian hog marketing plan will open the afternoon program. The six-man panel will complete the afternoon session discussing "The Future of Midwest Hog Marketing."

Dr. Kolmer said Mr. Wickard will appear on the program as a Camden, Ind., hog producer rather than as a former secretary of agriculture. However, he is expected to draw on his experience in administering nationwide farm programs. Mr. Wickard was assistant chief of the corn and hog section of the Agricultural Adjustment Administration. He became chief of this section in 1935. He was administrator of the Rural Electrification Administration from 1945 to 1953.

Conferees expect to consider central marketing, producer-owned markets, cooperative markets, concentration yards and integrated industry-controlled markets. They expect to look at possibilities for improving the swine marketing system through improving the markets' efficiency or giving producers more bargaining power in the markets—or both.

Marion Steddom, Granger, Iowa, president of the Iowa Swine Producers Assn., will preside at the morning session. William Zmolek, Iowa State College livestock marketing specialist, will preside in the afternoon.

Dr. Kolmer said anyone interested will be welcome and will have an opportunity to present questions and suggestions. Sponsors hope to bring together as much as possible the thinking of producers, industry, farm organizations and economists on the Midwest farmers' growing hog-market problems.

Feed Shipments Climb Steadily in Canada

WINNIPEG — Shipments of concentrated feeds in Canada during August climbed to 35,960 tons from 28,395 a year earlier, and complete feeds to 220,976 tons from 177,134. The total of other animal feeds fell to 42,589 tons from 49,579.

January-August shipments of concentrated feeds increased to 276,408 tons from 235,129 a year ago, and complete feeds to 1,595,393 tons from 1,377,088. The total of other animal feeds declined to 340,660 tons from 342,166 for the period.

Management of Layers Outlined in Kentucky

LEXINGTON, KY. — "Recommendations for Commercial Egg Flocks," a guide for Kentucky poultrymen, was released recently by the University of Kentucky.

The list was drawn up by John Tuttle, university poultryman, "after a careful study of the conditions of the commercial egg industry of the South today and after relating Kentucky conditions to this picture." The list covers recommendations for commercial egg flock environment and management requirements.

Covered are housing and equipment, pullet management, egg handling equipment, egg quality control and size of unit.

Under equipment, Mr. Tuttle recommends that bulk bins, mechanical feeders, feed carts and track carriers be used singly or in combination. He also notes that substantial savings in feed costs are found between bulk and bagged feed prices.

As part of the pullet management list, he recommends that the poultryman follow a definite feeding program. In general, he said, the program should bring pullets into production at five months. It should be geared so that full feeding, antibiotics, coccidiostats, wormers, medicinals or protein content can be changed or added as the necessity arises.

The minimum size flock recommended is 2,000 birds with the note that this should be increased to 4,000 birds if three or more units of labor can be devoted to the enterprise. Egg contractors must have 50,000 hens to start with and must grow to 100,000 or more to be successful, he said. These 50,000 to 100,000 hens must be in an egg community within a radius of 25 miles of the assembly plant, and the grade station must have 500 cases of eggs per week to start with and must have 1,000 cases or more per week after getting into operation.

Peavey Feed Mills Markets Dog Food

MINNEAPOLIS — Peavey Feed Mills, Minneapolis, has added a complete feed for dogs to its Tone feed line. Called Dog Tone, it is packaged in a 25-lb. container and is available in either meal or pellet form for distribution to all Tone dealers.

"There are several reasons for adding this feed to our line," said J. R. Lindell, sales manager of Peavey Feed Mills. "One is that dealers have requested we supply them with a Tone dog food.

"Another reason is that research indicates a growing market for prepared dog foods, particularly dry feeds. Since 1939 the dog population has increased 43%, and sales of prepared dog foods have gone up 70%."

Notice of the introduction of the product and Mr. Lindell's comments appeared in a recent issue of the Grainville Bugle, employee publication of F. H. Peavey & Co., Peavey Feed Mills' parent company in Minneapolis.

It was explained in the report that the new dog food product will not be marketed through any channels other than Tone dealers.

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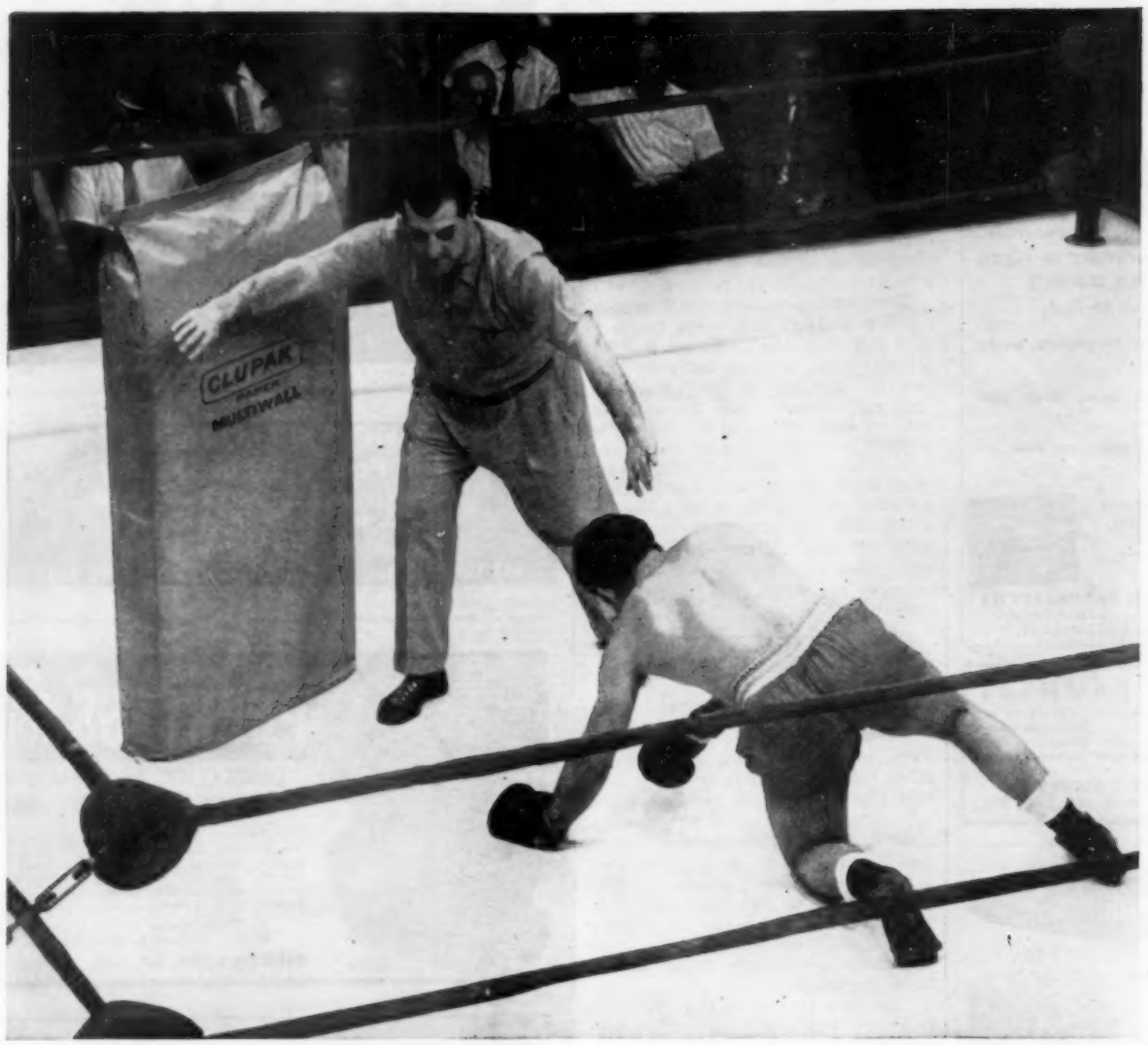

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TKO—technical knockout—breaks ordinary bags in test after test. But these new Clupak multiwalls stand up fine! They're that much tougher than the ordinary multiwalls. And this is proved in actual use—in extra rough handling.

The reason: our new multiwalls are made with Kraftsman Clupak paper—its patented, built-in "stretch" gives much greater toughness.

Yet, our new bags *cost no more* than the old ones!

West Virginia's Clupak multiwalls are available now in these types: Pasted Open Mouth, Pasted Valve, Sewn Valve, Sewn Open Mouth and Stepped End.

All of them are lighter and tougher. Try them . . . on your next carload order, let us include a trial shipment of 5,000 of our Clupak multiwalls. Call or write:

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SURPLUS

(Continued from page 1)

and oilseed supplies carried over into 1959-60 now put the total in the magnitude of 4 billion bushels plus, possibly running as high as 4.5 billion bushels.

Big '59 Crops Seen

On top of that, production in 1959, it is said, could be more than 8 billion bushels.

The projected carryout of old crop supplies represents about three fourths of the total production of these crops in the 1953 crop year.

One trade source who has examined the USDA projections comments that "mounting surpluses are not only well along in their development but are gaining momentum as they advance."

The situation is deeply disturbing to anyone who will take the time to ponder the figures. The result of the last election leaves Ezra Taft Benson, secretary of agriculture, with no hope of persuading Congress to act affirmatively on his policy theories. And, even if such a thing could be achieved, it is seen that nothing Congress can do when it resumes its sessions in January could be effective in time to check the trends which are now reaching avalanche proportions.

Also, it may be noted that this situation is not confined to cereal and feed grains. It is a chronic condition found in much of agriculture as the farm revolution proceeds. Similar problems exist in potato production, for example.

If nothing else, Secretary Benson has accomplished the clear demonstration that the farm policy structure of rigid or even flexible price supports plus acreage controls will not work.

But the immediate question is where Secretary Benson can go from here. There is the immediate temptation to suggest the Brannan plan approach, with compensatory payments for the big field crops, using a low level of parity support. However, a major objection rises in the form of the huge surpluses which now exist, with even more to come if 1959 crops come through as now indicated.

Huge Feed Supplies

The warning goes all across the farm scene. It carries deep significance to all producers of livestock and poultry. It indicates huge supplies of all feed ingredients and other products.

Naturally this warning note casts its shadow nearly 12 months ahead, and, in the interim, markets will reflect the transient conditions which generally shape the short term market attitudes.

While there seems little hope that much can be done to halt the results as seen in the USDA projections, it is possible that the new more liberal Congress will be restrained by the senior members, and no drastic change in farm legislation is to be expected at the first session of the new Congress. Of course, though, there will be the introduction of wildcat bills designed to produce the millennium within a few days. An example of what might be expected is the Proxmire bill, dropped into the hopper at the last session, which would cost the taxpayers almost $19 billion a year.

The estimates of forward supplies of grains and oilseeds should be of major concern to all feed and other processors. And they are of importance to commodity futures markets, too. There is the danger that a runaway Congress, facing pyramiding supplies, might take precipitate action to put the government into direct handling and sale of commodities.

Meanwhile, the old Brannan plan is not without support among respected economists and also major commodity interests who see in it a method of freeing up the major commodity markets. However, Charles Brannan set forth his program when prices were higher and surpluses were nothing like those now confronting the nation.

Perhaps now the major commodity markets may find some wisdom in an approach to the Brannan plan of compensatory payments to producers if some means can be found to circumvent the embarrassing presence of some 4 billion bushels of grains which will be in surplus in 1959 from old crop years, to say nothing of conditions which would prevail if now indicated new crop outlooks are sustained.

ALFALFA

(Continued from page 4)

said A. R. McFadden, National Alfalfa Dehydrating & Milling Co. vice president. "This material has been sold for usage, not storage. We have many customers all over the U.S. drawing heavily against bookings, asking for advanced shipping dates to keep pace with the feed demand."

Cattle and Sheep Usage

Another factor in this demand picture this year is that more dehydrated alfalfa has been fed to cattle and sheep, expanding the usage beyond feeds for hogs and poultry, points out Loyd Faris, director of sales, alfalfa division, Archer-Daniels-Midland Co. "With increased numbers of livestock throughout the country, we look for continued good feed business. If the 10% increased disappearance carries forward into the winter period, the shortage of material could be acute," Mr. Faris said.

"Low summer prices encourage greater usage," said Bob Wisemiller, sales manager for Consolidated Blenders, Inc. "It appears that disappearance for the winter period will be as great as it was last year so that we look for a tight situation by May 1."

Ford Patterson, in charge of sales for Midwest Alfalfa, points up the quality problem that could occur. "We don't know exactly how much of the stocks on hand are 17% protein, 100,000 units vitamin A material. No doubt there is some that is not."

Comparing October production with a year ago shows that the Midwest output was down substantially. October is normally the month when material produced is of high quality, enabling blending out of lower quality material. Nebraska October production this year was 30,200 tons compared with 44,200 tons a year ago. Kansas production was up 2,200 tons, but Colorado's was down 2,100. California October output was up 3,500 tons, but this material is at a great freight disadvantage in moving into the Midwest, and reports indicate that consumption is also strong in the western area.

With the figures to back up their feeling of the market, dehydrators are bullish, and some have already raised prices for next week.

RESERPINE

(Continued from page 4)

shrink during transit and increased resistance to disease.

Alterations of these functions, Ciba said, are influenced by many stress conditions which fall into five principal categories—genetic, disease, nutritional, parasitic and environmental. These are, in turn, associated with many factors.

"Positive evidence has been obtained that Serpasil will influence performance when one or more stress factors are present," the announcement said.

According to Dr. Alfred E. Earl, director of veterinary research at Ciba Pharmaceutical Products, Inc., Summit, N.J., "Serpasil will effect up to 5% of feed saved relative to weight gains or egg production under usual commercial conditions. These savings alone will justify the routine use of reserpine in livestock diets. Under commonly encountered stress such as temperature, disease, and the like, a proportionately greater savings can be expected.

"Continuing research and commercial application in livestock feeding will reveal more information on performance and mode of action of this tranquilizer."

In poultry feeds, Serpasil is recommended in concentrations of .5 to 1 gram per ton of feed. The new feed additive will contain reserpine in a concentration of 0.8% in soybean flour and will be marketed in 50-lb. multiwall paper bags.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
September 13	1,095	536	758	864	142	583	1,566	1,763
September 20	967	513	692	752	180	552	1,371	1,714
September 27	1,009	551	680	682	152	495	1,450	1,789
October 4	1,103	433	767	760	202	567	1,601	1,674
October 11	1,087	499	584	727	159	570	1,576	1,690
October 18	1,110	378	633	713	119	495	1,445	1,643
October 25	1,056	419	589	646	96	557	1,686	1,566
November 1	1,033	416	768	707	127	535	1,813	1,570
November 8	1,094	470	814	795	180	655	1,293	1,927
November 15	1,099	382	825	797	173	654	1,293	1,871

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
September 13	1,138	589	2,341	321	4,648	215	2,391	1,553
September 20	1,015	497	2,329	286	4,573	151	2,293	1,600
September 27	1,059	423	2,245	332	4,602	178	2,239	1,649
October 4	956	563	2,351	313	4,927	144	2,382	1,723
October 11	1,039	478	2,398	344	4,942	151	2,525	1,639
October 18	932	446	2,352	362	5,002	182	2,355	1,637
October 25	834	485	2,229	315	5,034	180	2,285	1,613
November 1	894	571	2,307	297	5,121	213	2,496	1,668
November 8	796	611	2,416	327	5,095	185	2,654	1,654
November 15	878	574	2,294	364	5,016	201	2,648	1,727

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1958	Total 22 areas 1957
September 13	2,329	400	1,740	342	176	916	26,406	25,028
September 20	2,210	355	1,618	249	193	845	24,955	24,298
September 27	2,242	309	1,469	287	175	829	24,846	24,134
October 4	2,405	371	2,023	247	123	892	26,527	24,675
October 11	2,416	404	2,165	272	149	770	26,584	24,237
October 18	2,374	423	2,126	209	141	761	25,838	23,930
October 25	2,475	411	1,963	281	118	773	25,611	23,413
November 1	2,465	357	2,143	298	140	819	26,758	23,058
November 8	2,308	367	2,158	236	161	836	27,032	24,205
November 15	2,463	394	2,269	273	164	812	27,171	24,456

Clayton Tonnemaker Promoted at Cargill

MINNEAPOLIS—F. Clayton Tonnemaker, bulk salt merchant in the commodities department of Cargill, Inc., Minneapolis, has been named manager of the sales department in charge of merchandising coal, molasses, peanuts, phosphate and salt.

He replaces Gene Knutson, recently named by Cargill as manager of the company's new "Miracle Mulch" operation, a garden product to be put into general distribution early next year.

Mr. Tonnemaker is a 1950 graduate of the University of Minnesota, where he was an all-America football player in 1949. He joined Cargill in 1955 after playing professional football with the Green Bay (Wis.) Packers.

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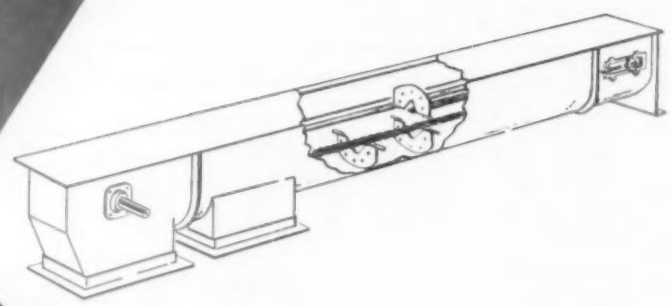

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A AND D FEEDING OIL

Chicago: Demand fair; supply adequate; straight A feeding oil, with 10,000 units vitamin A per gram 7@8¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Denver: Demand fair; trend steady; supply good; 2,250 A 300 D 21¢ lb.

Boston: Demand light; supply good; 400 D, 3,000 A 20¢ lb.; 300 D, 3,000 A 19½¢; 300 D, 1,500 A 16½¢; 300 D, 2,250 A 18¢; 600 D, 1,500 A 17½¢; 300 D, 750 A 14¾¢; 75 D, 750 A 14½¢.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19½@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18½¢ lb.

ALFALFA MEAL

Ft. Worth: Demand fair; supply sufficient; 17% protein dehydrated $54, delivered Ft. Worth area, truck; Kansas dehydrated, 17%, 100,000 A $58.50, rail; suncured 13%, No. 1 ¼-in. grind $39, truck.

Portland: Demand good; supply ample; trend firm; 15% suncured $40; dehydrated $48.

New Orleans: Demand fair; trend steady; supply adequate; $60@61; pellets $54@55.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $59@63.

Chicago: Demand fair; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $55@55.50; 13% No. 1 fine ground $42.

Boston: Demand fair; supply adequate; dehydrated, 17% $62; suncured, 13% $48, nominal.

Denver: Demand fair; trend steady; supply ample; dehydrated $45, Denver, carload lots.

Memphis: Demand fair; trend higher; supply scarce; dehydrated, 17% protein, guaranteed 100,000 units, vitamin A $55.

Seattle: Demand fair; trend firm; supply good; 15% protein suncured $44, truck loads; 136,000 A unit dehydrated $69, truck loads.

Buffalo: Demand fair; trend steady to higher; supply adequate; $65, Boston.

Minneapolis: Good demand; good supply; no change in price but firmer undertone; 17% dehydrated, 100,000 units vitamin A reground pellets $51 bulk; oiled reground $53.

Philadelphia: Demand and supply fair; 17% dehydrated $60.50.

St. Louis: Demand slow; trend steady; supply ample; 13% fine suncured $39.50; dehydrated, 100,000 units A $55.

Omaha: Demand excellent; supply limited; 17% dehydrated, 100,000 A units, bulk pellets $45; sacked meal $50, Omaha basis.

Los Angeles: Demand fair; trend unchanged; supply adequate; dehydrated meal 17% protein, 100,000 A $49; dehydrated pellet meal 17% protein, 100,000 A $51; suncured crumbles, 15% protein $43@44; suncured meal, 15% protein $41@42.

Kansas City: Demand active; trend strong; supply adequate for now, but not plentiful in relation to this time of year; dehydrated alfalfa meal with 17% protein and 100,000 units A guaranteed on arrival; reground material $50, with a $2 increase indicated for next week by blenders on all their material; oiled reground $52, sacked; pellets $44@45, bulk; 18% protein and 125,000 A meal $54; non-guaranteed A meal $41@42, sacked; suncured alfalfa demand is a little better, supplies adequate, No. 1 fine ground $32, No. 1 ¼-in. $31, No. 2 ¼-in. $29@30, sacked.

ANIMAL FATS (STABILIZED)

Ft. Worth: Demand fair; supply adequate; prime tallow, tank cars 8¢ lb.; drums 9½¢ lb., f.o.b. north Texas packing plants with returnable drums.

San Francisco: Demand fair; supply ample; bleachable fancy 8⅝¢ lb.; yellow grease 7¼¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 7½@8¢ lb., tank cars.

Chicago: Demand fair; supply short; bleachable fancy tallow, tank trucks or carlots 8¢ lb.; yellow grease 7¼¢ lb.

Louisville: Demand good; trend steady; supply normal; bleachable white 7¾¢ lb.; white tallow 8¼¢ lb.; yellow grease 6¾¢ lb.

St. Paul: Trade limited by scarce offerings; feed demand and soap and export demand moderate to good; bleachable fancy tallow 7¾¢ lb., f.o.b. producer's plant.

Kansas City: Demand slow, with feed manufacturers reported to be switching to other forms of fat; trend steady; supply adequate; prime stabilized tallow 7⅝¢ lb., tank car.

BARLEY FEED

San Francisco: Demand fair; supply ample; rolled $40; ground $59.

Ogden: Supply normal; rolled $48@53; whole barley $40@45.

Portland: Demand good; trend firm; supply ample; rolled $63, ground $61.

New Orleans: Demand slow; trend unchanged; supply light; $60@61.

Chicago: Demand quiet; supply adequate; $35.

Baltimore: Demand quiet; supply adequate; $46.50.

Philadelphia: Demand slow; supply fair; pulverized $46.

Milwaukee: Demand good; supply fair; needles $1.05@1.15 cwt.; ground screenings $35.

Los Angeles: Demand fair; trend firmer; supply adequate; standard rolled $3.28 cwt.; standard ground $3.28 cwt.

Boston: Demand slow; supply adequate; $45.

Seattle: Demand good; trend firm; supply fair; $52, bulk, truck lots.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 300 mesh fine $31.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points; granular 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $12.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots; 80 granular $13.50 net; 200 mesh fine $13.25 net.

Denver: Demand fair; trend good; supply ample; $21.

BLOOD FLOUR

Louisville: Demand fair; trend steady; supply normal; $90@95.

BLOOD MEAL

Portland: Demand slow; trend weak; supply ample; $105.

Ogden: Supply normal; $100 in 100-lb. bags, f.o.b. Ogden.

San Francisco: Demand good; supply tight; $6.75 a unit of ammonia.

New Orleans: Demand fair; trend unchanged; supply light; $117@122.

Louisville: Demand fair; trend steady; supply ample; $90@95.

Los Angeles: Demand fair; trend unchanged; supply adequate; $7.50 a unit of ammonia.

Chicago: Demand and supply fair; $127.50 @130, guaranteed 80% protein.

BONE MEAL (STEAMED)

Ft. Worth: Demand fair; supply light; $85, f.o.b. Ft. Worth, local manufacture.

Portland: Demand slow; supply ample; trend weak; $95.

San Francisco: Demand good; supply ample; $72.50.

New Orleans: Demand slow; trend easy; supply normal; $80@85.

Chicago: Demand and supply fair; $75 @90.

Cincinnati: Demand good; trend steady; supply fair; $90.

Los Angeles: Demand steady; trend unchanged; supply adequate; imported $73.50 in 20-ton lots.

Buffalo: Demand good; trend steady; supply ample; $90.

Seattle: Demand and trend steady; supply good; $85, ex-dock, truck lots.

Louisville: Demand fair; trend steady; supply normal; $85@90.

Denver: Demand good; trend steady; supply tight; $75, f.o.b. Bay Shore, Cal.

Boston: Demand and suppy steady; $90.

BREWERS DRIED GRAINS

New Orleans: Demand slow; supply ample; trend steady; $52@53.50.

San Francisco: Demand fair; supply ample; $54.

Ft. Worth: Demand fair; supply moderate; $54.40, November.

Chicago: Demand fair; supply adequate; 26% $47@48.50.

Cincinnati: Demand and supply fair; trend steady to higher; $56.

Buffalo: Demand and supply fair; trend steady to higher; $51.50, bulk, Boston.

Louisville: Demand fair; trend easy; supply good; $50.

Boston: Demand good; supply short; 26% $58; 22% $57.

Philadelphia: Demand and supply fair; $60.

St. Louis: Demand fair; trend steady; supply ample; $48.

Milwaukee: Demand good; supply fair; $48.50.

Los Angeles: Demand steady; trend unchanged; supply adequate; $49 bulk, $50 sacked.

BREWERS DRIED YEAST

Portland: Demand steady; trend firm; supply ample; 8½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Denver: Demand light; trend steady; supply ample; 9¢ lb., f.o.b. Golden, Colo.

Boston: Demand and supply steady; 10¢ lb.

Louisville: Demand slow; trend steady; supply ample; 10@10½¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12.

Buffalo: Demand good; trend steady; supply ample; $10.35 cwt.

Los Angeles: Demand steady; trend unchanged; supply ample; 10¢ lb. in 5-ton lots; 11¢ lb. in 1-ton lots; 12¢ lb. in less than 1-ton lots.

Omaha: 10½¢ lb.

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

BUTTERMILK-CONDENSED

San Francisco: Demand fair; supply good; $5 cwt.

Ogden: Supply average; $4.40, 100-lb. drum.

Wichita: Demand good; supply insufficient; $2.90 cwt. in barrels.

New Orleans: Demand slow; supply normal; trend steady; $4.25@4.30 cwt.

Chicago: Demand light; supply adequate; $3.25 cwt. in carlots.

Philadelphia: Demand slow; supply light; $4.25 cwt.

Boston: Demand slow; supply light; 3½¢ lb.

Louisville: Demand dull; trend steady; supply light; $4.25 cwt.

Los Angeles: Demand and trend steady; supply adequate; 5½¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.63, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Chicago: Demand steady; supply adequate; fine grind, plain $9.54, 100-lb. bags; bulk, in hopper cars, fine grind $7.54; bulk in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Los Angeles: Demand and trend steady; supply ample; $10.25.

Minneapolis: Fine grind, 50-lb. bag $12.25, 100-lb. bag $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

San Francisco: Demand steady; supply good; $141.

Chicago: Demand quiet; supply adequate; poultry charcoal $110 ton in 50-lb. multiwalls.

Boston: Demand and supply light; $100.

Los Angeles: Demand fair; trend unchanged; supply adequate; hardwood poultry $156 in less than ton lots; $144.40 in ton lots.

COCONUT OIL MEAL

Portland: Demand good; trend higher; supply limited; $73.50.

San Francisco: Demand good; supply tight; solvent $86; expeller $87.

Seattle: Demand fair; trend steady; supply ample; $76, ex-dock, Seattle (Philippine production).

Los Angeles: Demand fair; trend firmer; supply very limited; copra cake $84@87, bulk.

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply good; 600 D, 2,250 A 19¢ lb.; 300 D, 3,000 A 20½¢; 300 D, 2,250 A 18½¢; 600 D, 1,500 A 18¢; 300 D, 1,500 A 17¢.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; supply limited; trend steady; 50% solid $89@92, f.o.b. Gulf.

Denver: Demand fair; trend steady; supply good; dried $187.40, f.o.b. Denver.

New York: Demand and supply fair; trend steady; 4⅝@5¢ lb., f.o.b. eastern shore.

Boston: Demand steady; supply scarce; 5¢ lb. nominal.

Los Angeles: Demand steady; trend unchanged; supply adequate; 5¢ lb.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $51.80, meal $83.80.
Atlanta: Feed $57.98, meal $89.98.
Birmingham: Feed $56.64, meal $88.64.
Boston: Feed $56.84, meal $88.84.
Chicago: Feed $45, meal $77.
Cleveland: Feed $53.14, meal $85.14.
Denver: Feed $55.51, meal $87.51.
Ft. Worth: Feed $53.96, meal $85.96.
Indianapolis: Feed $50.36, meal $82.36.
Kansas City: Feed $45, meal $77.
Louisville: Feed $52.21, meal $84.21.
New Orleans: Feed $55.20, meal $87.20.
New York: Feed $56.43, meal $88.43.
Norfolk: Feed $55.71, meal $87.71.
Philadelphia: Feed $56.02, meal $88.02.
Pittsburgh: Feed $53.96, meal $85.96.
St. Louis: Feed $45, meal $77.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $49.

Louisville: Demand dull; trend steady; supply light; $52.45.

COTTONSEED OIL MEAL

San Francisco: Demand good; supply fair; expeller $64.70; 41% solvent $66.20.

Wichita: Demand slow; supply ample; 41% old process $65.

Portland: Demand good; supply ample; trend unchanged; $63.

Ft. Worth: Demand excellent for meal, slow for hulls; limited offerings; carlots, 41% old process $62; solvent $60.80; pellets $2 additional; cottonseed hulls $18.

Ogden: Supply normal; 41% $63@68.

New Orleans: Demand light; supply adequate; trend steady; $67@68.50.

Chicago: Demand fair; none offered; hydraulic, nominally $63.50; solvent, nominally $62@62.50, basis Memphis.

Cincinnati: Demand fair; trend higher; supply adequate; $70.

Boston: Demand good; supply adequate; $80.

Denver: Demand and supply good; trend strong; $65.

Memphis: Demand fair; trend steady; supply limited; prime 41% protein, old process $62; new process, 41% solvent $61.

Louisville: Demand slow; trend stronger; supply normal; old process $69, new process $68.

Seattle: Demand good; trend steady; supply fair; $69, truck lots, 41% expeller process.

Buffalo: Demand and supply fair; trend steady to higher; $80, Boston.

Kansas City: Demand fair in this area, good further South; trend firm; supply adequate; old process meal $62@63, sacked, Memphis; solvent meal $66, sacked, delivered Kansas City, coming from Texas.

Philadelphia: Demand dull; supply light; $80.

St. Louis: Demand fair; trend up; supply ample; solvent $61.

Los Angeles: Demand good; trend firmer; supply tight; expeller $56, bulk; solvent $60@61, bulk.

Omaha: Demand fair; supply adequate; 41% solvent $63.20, bulk.

Atlanta: Demand good; trend strong; supply limited; 41% $68.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9½@10¢ lb.; 3,000 ICU 11½@12¢ lb. in ton lots or larger.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $71.50, net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $68.50 in bulk.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100-lb. multiwall bags, $57 and $57.75 in bulk.

Cincinnati: 18% phosphorus $81; 13% phosphorus $64.98.

DICALCIUM PHOSPHATE

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $94.10, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bags.

Cincinnati: 18½% phosphorus $92@93.

Denver: Demand good; trend firm; supply ample; $96.

Portland: Demand good; supply ample; trend unchanged; $115.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles $85.

Cincinnati: Demand poor; trend steady; supply adequate; $52.

Boston: Demand fair; supply short; light $60, dark $62.

Louisville: Demand fair; trend easy; supply good; November production reported as sold; December prices: bourbon grains, light $50, off $3; dark $52, off $3; solubles $77, unchanged.

Seattle: Demand good; trend firm; supply ample; $67, truck lots.

Philadelphia: Demand slow; supply light; $65.

DRIED BEET PULP

San Francisco: Demand good; supply fair; $42.40.

Portland: Demand good; supply ample; trend unchanged; $50.

Ogden: Supply average; $38@42.

Ft. Worth: Demand fair; supply sufficient; carlots, 50-lb. papers: November-December, plain or molasses $53.33, delivered Ft. Worth.

New Orleans: Demand fair; trend unchanged; supply ample; $63@64.

Milwaukee: Demand good; supply fair; plain $50, molasses $50.

Los Angeles: Demand and trend steady; supply adequate; molasses $46.90@47.70, bulk.

Boston: Demand fair; supply ample; $57.50.

Seattle: Demand slow; trend steady; supply good; $45, carlots.
Atlanta: Demand slow; trend steady; supply ample; $63.10.
Buffalo: Demand and supply fair; trend steady; $56.50, Boston.

DRIED BUTTERMILK

Ogden: Supply normal; $7.25, 100-lb. bag.
San Francisco: Demand fair; supply ample; 11¢ lb.
New Orleans: Demand slow; trend steady; supply ample; $11@11.50 cwt.
Chicago: Demand fair; none available; medium acid $11 cwt.; sweet cream $11.50 cwt. in carlots.
Milwaukee: Demand and supply fair; $10 cwt.
Los Angeles: Demand and trend steady; supply adequate; 11¾¢ lb.
Boston: Demand and supply nil; withdrawn because of scarcity.
Louisville: Demand fair; trend stronger; supply normal; 11½@12¢ lb.
Buffalo: Demand good; trend steady; supply limited; $11.35 cwt.

DRIED CITRUS PULP

San Francisco: Demand and supply fair; meal $54.
New Orleans: Demand fair; trend steady; supply ample; $53.50@57.50, f.o.b. Florida.
Atlanta: Demand fair; trend steady; supply ample; meal $54; pulp $51.50.
Boston: Demand slow; supply improved; $47, f.o.b. shipping point.
Los Angeles: Demand and trend steady; supply limited; orange pulp $41, bulk; lemon pulp $39, bulk.
Buffalo: Demand and supply poor; too scarce to quote.

DRIED SKIM MILK

Ogden: Supply average; $15.15, 100-lb. drum.
Portland: Demand good; supply ample; trend unchanged; 13¢ lb.
San Francisco: Demand and supply fair; 13½¢ lb.
New Orleans: Demand slow; supply ample; trend steady; $11.50@12 cwt.
Chicago: Demand good; supply light; $10.50@10.75 cwt. in carlots.
Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.
Philadelphia: Demand slow; supply light; $12.50 cwt.
Milwaukee: Demand and supply fair; $11 cwt.
Los Angeles: Demand and trend steady; supply adequate; 14¢ lb. in less than ton lots; 13¾¢ lb. in ton lots.
Boston: Demand steady; supply short; 12¢ lb. in ton lots.
Louisville: Demand fair; trend steady; supply ample; 11½@12¢ lb.

FEED INGREDIENTS
Fish Meal • Scrap • Solubles
Bigelow Sales Company
10 Bridge St. NEW YORK 4, N.Y.
Tel. HAnover 2-9195

Buffalo: Demand good; trend steady; supply ample; spray $10.65 cwt.; roller $11.50 cwt.
Minneapolis: Strong demand for very light supply; price firm at 11½@12¢ lb., less than carload lots.

DRIED WHEY

Ogden: Supply normal; $6.90, 100-lb. bag.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, November, sacked, delivered Ft. Worth; $6.25, November, ton lots, f.o.b. warehouse, Ft. Worth.
San Francisco: Demand steady; supply good; $5 cwt.
Portland: Demand good; supply ample; trend unchanged; $7 cwt.
New Orleans: Demand good; supply adequate; trend steady; $6@6.50 cwt.
Chicago: Demand fair; supply adequate; $5.50, f.o.b. plant.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Boston: Demand steady; supply plentiful; 5½¢ lb., f.o.b. plant.
Louisville: Demand fair; trend firmer; supply normal; 6¼@6¾¢ lb.
Seattle: Demand steady; trend firm; supply good; $6.40 cwt., ex-warehouse, L.c.l.
Los Angeles: Demand and trend steady; supply adequate; $6.16 cwt. in carloads; $6.40 cwt. in l.c.l.
Philadelphia: Demand slow; supply light; $6.25 cwt.
Kansas City: Demand fair; trend steady; supply lighter; $5.50 cwt. producers' plants for regular or partially delactosed.

FEATHER MEAL (HYDROLYZED)

Ft. Worth: Demand good; supply moderate; 85 to 87% protein $83.50, f.o.b. trucks, north Texas plants.
Atlanta: Demand fair; trend steady; supply ample; $94, immediate, f.o.b. Alabama and Georgia producing points.
Los Angeles: Demand and trend steady; supply adequate; $1.25 a unit of protein.
Boston: Demand steady; supply light; $85, f.o.b. shipping point.
Salisbury, Md.: Good demand for limited supply; $93, bulk, f.o.b. producers' plants.

FISH MEAL

Ft. Worth: Demand good; supply limited; 65% Peruvian $160 early December arrival; $162 last half arrival, f.o.b. Houston.
San Francisco: Demand good; supply fair; $2.30 a unit of protein.
Portland: Demand slow; trend lower; supply ample; $2.25 a unit protein.
Ogden: Supply average; $2.20 a unit, f.o.b. Coast; 65% $151@153.
New Orleans: Demand light; supply limited; trend steady; menhaden 60% $143@145; scraps $134@135, f.o.b. Gulf.
Chicago: Demand good; supply very tight; eastern menhaden fish meal, 60% protein, no offerings; Gulf, no offerings; Northwest herring-salmon blend $138; Canadian herring, 73% protein, $2.20@2.30 a unit of protein subject to production.
Cincinnati: Demand fair; trend steady; supply adequate; $164.
Boston: Demand very active; supply scarce; $143, f.o.b. shipping point.
Denver: Demand good; trend strong; supply scarce; $2.25 a unit of protein, f.o.b. West Coast.
Louisville: Demand slow; trend steady; supply light; $165@170.
Seattle: Demand good; trend easy; supply limited; $2.43 a unit protein, truck lots (Canadian production).
Buffalo: Demand good; trend stronger; supply nil; 60% protein, menhaden $180 bulk, nominal; $185, sacked, nominal.
Minneapolis: Light demand; fair supply of 60% meal but scarcity of 70% herring, price unchanged; 60% $168@173, truck lots; 70% herring $2.30 a unit, nominal, West Coast.
Milwaukee: Demand and supply fair; 60% $59, Milwaukee.
Atlanta: Demand fair; trend strong; supply extremely limited; 60% $170, nominal.
Los Angeles: Demand good; trend firm; supply tight; local production, 60% protein $2.30 a unit.

HAY

Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38, No. 2 $34@36; prairie No. 2 $26@28; No. 2 Johnson grass $24@26, delivered Texas common points.
Portland: Demand good; trend firm; supply limited; $30@32.
Ogden: Supply average; $1 bale; $15 ton in the field; $18 in the barn.
Wichita: Demand poor; supply ample; prairie $8@10, alfalfa $10@12.
Cincinnati: Demand poor; trend steady; supply adequate; by truck—No. 1 timothy $24; No. 1 second cutting green alfalfa $31; mixed $27; wheat or oat straw $19.
Philadelphia: Demand slow; supply fair; $32@35.
Los Angeles: Demand very slow except for top grades; U.S. No. 1 $32@34; U.S. No. 2 leafy $29@31; U.S. No. 2 green $27@29; U.S. No. 2 $24@26.
Boston: Demand good; supply adequate; No. 2 timothy $40@42; No. 2 red clover $43@45.
Denver: Demand poor; trend slow; supply ample; alfalfa, baled $25, first and second cutting.
Louisville: Demand poor; trend steady; supply good, hay scarce in home grown lots of off grade local hay; northern hay and variety No. 1 $25, No. 2 $23; straw, strong, heavy demand from construction $25.
Seattle: Demand fair; trend firm; supply good; alfalfa $32 delivered truck lots, U.S. No. 2 green.

HOMINY FEED

New Orleans: Demand light; supply adequate; trend steady; $47.50@49.
Chicago: Demand good; supply tight; $44@44.50.
Cincinnati: Demand fair; trend lower; supply adequate; $45.
Boston: Demand fair; supply ample; $53.
St. Louis: Demand slow; trend steady; supply limited; yellow $44.
Milwaukee: Demand good; supply fair; $42.50, nominal.
Kansas City: Demand fair to good; trend steady; supply fairly tight, with strength in millfeed having brought some substitution; yellow $37, bulk, $3.50 more for sacks, white $1 less, if available.
Memphis: Demand nil; trend higher; supply scarce; white $47, yellow $47.
Louisville: Demand slow; trend steady; supply ample; $45.
Seattle: Demand fair; trend firmer; supply good; $53, carlots.
Buffalo: Demand good; trend higher; supply fair; $30.50, bulk, Boston.

LINSEED OIL MEAL

Portland: Demand good; trend higher; supply ample; $77.
Ft. Worth: Demand good; offerings extremely light for December; carlots, 34% solvent: December $81.50, January $81.50, basis present freight rate; truck $80.50; pellets $2.50 premium.
San Francisco: Demand fair; supply ample; $72.50.
Wichita: Demand slow; supply ample; 34% $74.50.
New Orleans: Demand good; supply ample; trend strong; $69.50@70.
Cincinnati: Demand poor; trend higher; supply fair; new process $74; old process $81.50.
Chicago: Demand good; supply scarce; solvent, nominally $63@63.50; expeller, nominally $64.50@65, basis Minneapolis.
Kansas City: Demand good in relation to limited supply caused by lack of production; trend strong; solvent meal $60@61, bulk, Minneapolis; old process $62.
Philadelphia: Demand and supply fair; trend unsettled; 34% $79.50.
Milwaukee: Demand good; supply fair; old process $73.50, nominal; new process $70.
Omaha: Demand good; supply tight; 34% solvent $66.50, bulk; 32% old process $67.50.
Los Angeles: Local production, 29% protein, no offerings.
Boston: Demand and supply light; $80.
Denver: Demand good; trend steady; supply tight; nominal price $76.
Louisville: Demand fair; trend strong; old process $60.40, up $3; new process $76.40, up $2.
Seattle: Demand fair; trend firm; supply limited; $80, carloads, 34% protein.
Minneapolis: Strong demand for very thin supply because of lack of production; price stronger; December for solvent $62.50, bulk; December expeller $65, bulk.

MALT SPROUTS

New Orleans: Demand fair; trend steady; supply limited; $44.50@46.
Chicago: Demand fair; supply adequate; No. 1 $43.
Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $48.
Boston: Demand and supply limited; $42.50.
Milwaukee: Demand good; supply fair; odd weights $41; even weights $43.

MEAT AND BONE MEAL

Portland: Demand slow; trend lower; supply ample; $1.50 a unit.
San Francisco: Demand good; supply ample; $1.70 a unit of protein.
Wichita: Demand fair; supply sufficient; 50% $95, f.o.b. plant; 55%, no quotations, no offerings.
Ft. Worth: Demand improved; supply sufficient; meat and bone, 50% $88@90, f.o.b. or delivered Ft. Worth.
Ogden: Supply normal; $90.50 in 100-lb. bags.
New Orleans: Demand slow; trend weaker; supply adequate; $102@104.50.
Chicago: Demand fair; supply adequate; 50% protein $87.50@95.
Cincinnati: Demand good; trend strong; supply fair; 50% meat and bone scraps $90.
St. Louis: Demand good; trend higher; supply fair; $105.
Kansas City: Demand fair; trend steady; supply a little more plentiful than tankage but not liberal; 50% meat and bone scraps $90@92.50, sacked.
Omaha: $90.
Los Angeles: Demand slow; trend easier; supply plentiful; 50% protein $1.80 a unit.
Boston: Demand steady; supply adequate; $1.35 a protein unit; converted 50% $80.
New York: Demand poor; trend steady; supply tight; 50% $82.50, 55% $90 bulk; 50% $85.50, 55% $93 sacked.
Denver: Demand good; trend up; supply ample; 50% $83.50 bags, 50% protein truck lots.
Louisville: Demand fair; trend steady; supply normal; $90@95.
Seattle: Demand fair; trend weak; supply good; $90, ex-warehouse, 50% protein.
Buffalo: Demand good; trend higher; supply ample; 50% meat scraps $92.50 bulk, $97.50 sacked.
St. Paul: Fair demand; but tighter supply situation brought firmer undertone late in week; 50% meat and bone meal $85@95.

MILLFEED

Minneapolis: Practically unobtainable for the remainder of November, but price almost even with sacked; supplies continue very tight and nominal prices are higher than a week ago; bran $41; standard midds. $42.50@43.50; red dog $43.50@44.50.
Kansas City: Demand good, especially for sacked feeds; trend steady to stronger; supply tight, with winter weather helping to increase demand; bran $36.50@37.25, shorts $40.50@41.25, sacked; bran $33@33.75, shorts $39.50@40.25, middlings $38.75@39.50, bulk.
Wichita: Demand active; supply adequate; basis Kansas City: bran $36.25@36.75, shorts $40.25@40.75; bran advanced $1.75 and shorts $2, compared with the preceding week.
Ft. Worth: Demand good on bran and middlings, slackening on shorts; supply limited; carlots, burlaps, prompt, bran $45, gray shorts $49, bulk middlings $48@48.50, delivered Texas common points; $2

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higher on bran and shorts compared with previous week.

Omaha: Demand excellent; supply limited; bran $37.50, gray shorts $43.50, bulk standard midds. $40, all Omaha basis.

New Orleans: Demand fair; trend steady; supply adequate; bran $48@48.75, shorts $52@52.75.

Chicago: Millfeeds posted moderate to good advances during the week ending Nov. 19. Interest from feed manufacturers was very apparent, observers said, and offerings were not too readily available. The upturn in feed business this week is thought to have stimulated buyers to enter the market. Quotations: bran $44.50@45, standard midds. $48, flour midds. $45@48.50, red dog $49@50.

St. Louis: Demand good; trend steady; supply light; bran $42@42.50, shorts $46@46.50, sacked; bran $38@38.50, shorts $44@44.50, middlings $44@44.50, bulk.

Cincinnati: Demand and supply fair; trend higher; bran $50.50, middlings $52.50.

Boston: Demand active; supply spotty; bran $53.50, middlings $55.50.

Buffalo: Active demand again carried millfeeds to higher levels. Shipping positions were thin. One trade source said it was a "beautiful sellers' market." Some resistance to middlings prices appeared but bran was in good demand and some users said they were going to double normal usage next month. Activity was expected to level off soon but some believe it will carry on through the winter. Both bran and middlings ended $2 higher. Red dog was unchanged to up $1. Quotations Nov. 19: bran $49.50@50, standard midds. $51.50@52, red dog $51@54.50. The bulk differential on both bran and middlings was $5.

New York: Demand and supply good; trend stronger; bran $55@55.50; standard midds. $57@57.50.

Philadelphia: Demand slow; trend unsettled; supply fair; bran $55, standard midds. $57, red dog $60.

Louisville: Demand fair; trend strong; supply ample; bran $47.60, up $1.80; mixed feed $50.10, up $1.75; shorts $53.10, up $2; middlings $53.80, up $3.

Memphis: Demand good; trend steady; supply scarce; wheat bran $44.50, gray shorts $48.50; standard midds. $48.

Denver: Demand good; trend weak; supply ample; mill run $39.25, shorts $41.25, bran $37.25.

Seattle: Demand fair; trend steady; supply ample; $38, common transit points, carlots.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $37, middlings $42; to Denver: red bran and mill run $44, middlings $49; to California: red bran and mill run $44.50, middlings $49.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Standard mill run $44.50@45, bulk, good interest, firmer trend, supplies tighter; red bran $50@52, bulk, slow demand, firmer trend, ample supplies.

San Francisco: Demand fair; supply ample; millfeed $46; red bran $51.

MINERAL FEED

Portland: Demand slow; supply ample; trend unchanged; $45.

Ft. Worth: Demand fair; supply ample; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $99, block $103; hog mineral phosphorus 3½% granules $38, phosphorus 2% $78 (all in 50-lb. paper bags).

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Ogden: Supply average; $113 in 50-lb. blocks; $103, granular, 50-lb. bags.

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $95, 100-lb. bags $90, f.o.b. plant.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Denver: Demand fair; trend steady; supply ample; $155.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

MOLASSES

Ft. Worth: Demand improving; supply sufficient; blackstrap 13½¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $30.78 ton, seller's market price on date of shipment.

San Francisco: Demand and supply good; $26, f.o.b. cars, Richmond, Cal.

Cincinnati: Demand fair; trend steady; supply adequate; 13¾¢ gal., New Orleans.

Louisville: Demand fair; trend easy; supply normal; 13¢ gal., tank car lots; Gulf ports, down ¼¢ gal.

Memphis: Demand weak; trend lower; supply adequate; blackstrap 12¾@13¢ gal., tank car, f.o.b. New Orleans; $29, delivered, Memphis, truck.

Boston: Demand good; supply plentiful; 17½¢ gal. in tank cars.

New York: Demand and supply good; trend steady; blackstrap 17¢ gal., tank cars, tank wagons, f.o.b. New York.

Denver: Demand fair; trend steady; supply good; 13¢ gal., New Orleans.

Minneapolis: Slow demand for ample supply; price weaker at 12¾@13¢ gal., New Orleans.

Buffalo: Demand fair; trend steady; supply good; 17¾¢ gal., f.o.b. Albany.

Seattle: Demand fair; trend steady; supply good; $25, f.o.b. Seattle, tank car lots or truck lots.

Atlanta: Demand good; trend strong; supply limited; citrus $22.50, bulk, f.o.b. Florado producing points, immediate.

St. Louis: Demand fair; trend lower; supply ample; 12¾¢ gal., New Orleans.

Milwaukee: Demand fair; supply good; blackstrap 13¼¢ gal., f.o.b. New Orleans.

Los Angeles: Demand steady; trend easier; supply adequate; $24 bulk, f.o.b. tank cars; $24.25 bulk, f.o.b. tank trucks.

Kansas City: Demand fair; trend steady to weaker; supply adequate; 12¾@13¢ gal., tank car, New Orleans, mostly 12¾¢.

NIACIN

New York: Trend steady; $8 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Ft. Worth: Demand slow; supply sufficient; oat millfeed $43.45; reground oat millfeed 3% protein, sacked $24.95.

Portland: Demand good; trend firm; supply ample; rolled $62, ground $59, cleaned $61.

Chicago: Demand fair; supply adequate; reground oat feed $16.50@17; fine ground feeding oatmeal $70@72; feeding rolled oats $80@82.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $20.60; pulverized white oats $49; rolled oats $83@86.

Philadelphia: Demand slow; supply fair; pulverized white $52.50; Canadian oat feed $31; domestic oat feed $24.

Los Angeles: Demand fair; trend firm; supply adequate; pulverized, local production $62.

Boston: Demand and supply steady; white pulverized $55; ground mixed $44.45; reground oat feed $17.25.

Memphis: Demand fair; trend higher; supply very scarce; 3½% protein, reground oat feed $23.25.

Louisville: Demand fair; trend steady; supply ample; reground $24.30, up $2; rolled $84.30, steady; feeding $78.30, steady; pulverized $50.80, steady; crimped $66, up 70¢.

Minneapolis: Fair demand; ample supplies; prices unchanged except for reground; feeding rolled oats $78; feeding oatmeal $69; pulverized $44.50; crimped $53; reground $17.

Seattle: Demand and supply fair; trend firmer; $50 bulk, truck lots.

OYSTER SHELL

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Portland: Demand fair; supply ample; trend unchanged; western $34, eastern $38.50, granite grits $26, shell flour $24.

New Orleans: Demand good; supply plentiful; trend steady; $17@17.50.

Cincinnati: Demand fair; trend steady; supply adequate; $23.45.

Los Angeles: Demand and trend steady; supply ample; $14.80.

Boston: Demand and supply steady; $25 in paper.

Louisville: Demand good; trend firm; supply ample; in 80-lb. paper bags $22.85, in 50-lb. paper bags $23.10, in 25-lb. paper bags $25.85.

Seattle: Demand and trend steady; supply good; eastern $35, carlots.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $42.

Atlanta: Demand fair; trend steady; supply limited; 45% $66.

PEAT MOSS

Portland: Demand slow; supply ample; trend unchanged; $3.25 bale.

San Francisco: Demand fair; supply ample; $3.75 bale.

Chicago: Demand fair; supply short; $3.60@3.70, standard 7½ cu. ft. bale.

Boston: Demand and supply steady; $3.15 bale.

Philadelphia: Demand dull; supply nil; $2.85 bale, nominal, f.o.b. pier.

Los Angeles: Demand fair; trend unchanged; supply ample; Canadian, 6.1 cu. ft. bales $3.85.

Seattle: Demand poor; trend easy; supply good; $2.70 bale, truck lots.

POTASSIUM IODIDE, U.S.P.

Chittenango, N.Y.: Demand good; supply adequate; 90% KI stabilized with calcium stearate, 200 lb. in 100-lb. cartons $1.35; 100-lb. cartons $1.36; freight prepaid to destination.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41.

POULTRY BY-PRODUCTS

Ft. Worth: Demand good; supply moderate; 55% protein $95, f.o.b. north Texas plants.

Salisbury, Md.: Good demand for limited supply; $97, bulk, f.o.b. producer's plant.

Boston: Demand fair; supply tight; $97@100, f.o.b. shipping points.

Los Angeles: Demand slow; trend easier; supply ample; $1.60 a unit of protein.

Atlanta: Demand fair; trend steady; supply ample; $99.50, f.o.b. Alabama and Georgia producing points.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Ft. Worth: Demand good for export, slow for domestic at present price; none offered; carlots, rice bran $37@38, nominal, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

San Francisco: Demand fair; supply ample; bran $40; polished $49.

Los Angeles: Demand steady; trend firmer; supply tight; bran, California production, high fat content $49.

SCREENINGS

Chicago: Demand fair; supply adequate; ground grain screenings $30.50; Canadian, bulk $23.

Ft. Worth: Demand almost nil; supply sufficient; ground $28, nominal.

Cincinnati: Demand fair; trend steady; supply adequate; malt house $19.50; barley $22.50@23.50.

Buffalo: Demand good; trend higher; supply fair; ground $33, New York, lake and rail; unground, bulk $26.50, New York.

Minneapolis: Big demand for very light supplies of all types of screenings; price firmer; lights $6@16, mediums $16@25, heavies $26@35; Canadian bulk $20; Canadian ground $30; flaxseed screenings $35; oil type flaxseed screenings $40 basis 15%.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.95.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.21@2.23, delivered Texas common points.

Los Angeles: Demand steady; trend firmer; supply ample; milo $2.37½ cwt., bulk.

SOYBEAN OIL MEAL

Ft. Worth: Demand fair; supply sufficient; mills reluctant to quote for delivery to Southwest until definite decision of ICC on freight rates; carlots, 44%. November $80.50, December $79.50, January - March coupled $78.50; 50% protein: November $87.50; all basis present freight rates; truck meal 44% $69.50@70.50 this week.

San Francisco: Demand fair; supply ample; $83.50.

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Portland: Demand good; supply ample; trend higher; $46, f.o.b. Decatur.
Ogden: Supply normal; $81@86.
Wichita: Demand active; supply adequate; 44% $67, 50% $81, f.o.b. Wichita.
New Orleans: Demand fair; trend steady; supply adequate; $65@67.
Cincinnati: Demand poor; trend higher; supply fair; $57, bulk, Decatur.
Chicago: Demand was good for soybean oil meal during the week ending Nov. 19, but prices were moderately uneven. Observers took this to indicate the sharp advance in the meal market is near an end and a period of stability of even lower prices might be expected. It was felt that the big bean harvest had encouraged the idea that meal prices might be low this season, and consumers held back for the low point. However, inventories got low and buyers were forced into the market mostly at the same time. However, some sources believe immediate needs are filled now, and orderly buying can proceed. Quotations: 44% protein soybean oil meal, bulk, unrestricted, basis Decatur $57.50@58; eastern restricted $56@56.50; 50% bulk, unrestricted, basis Decatur $62; eastern restricted $61.
Kansas City: Demand slow here, good to the east; trend firm; supply adequate for demand, but not a great deal available; meal for Kansas City and western shipment $53@53.50, bulk, Decatur; unrestricted meal $58.50@59.50.
Los Angeles: Demand fair; trend firmer; supply ample; $79, bulk.
Milwaukee: Demand good; supply fair; $56, bulk, Decatur.
Philadelphia: Demand and supply fair; trend unsettled; 44% $56, bulk, Decatur.
Atlanta: Demand good; trend strong; supply ample; 44% $67.
St. Louis: Demand fair; trend higher; supply limited; 44% $69.
Omaha: Demand good; supply limited; 44% $60.90, bulk.
Boston: Demand good; supply adequate; f.o.b. bulk, Decatur: 44% $57, 50% $61.
Denver: Demand fair; trend steady; supply ample; $72.50.
Memphis: Demand good; supply scarce; trend up; prime 44% solvent $65.
Louisville: Demand fair; trend stronger; supply normal; $67, up $1.
Seattle: Demand steady; trend firmer; supply ample; $78, carlots.
Minneapolis: Good demand; good supply; price up $1.50; 44% meal, f.o.b. Decatur for Minneapolis shipment $48 bulk; 50% $57 bulk.

TANKAGE

Cincinnati: Demand good; trend strong; supply fair; 60% digester $97.50, sacked, Cincinnati.
Wichita: Demand fair; supply sufficient; 60% $97.50, f.o.b. plant.
Ft. Worth: Demand fair; supply sufficient; 60% digester $94, f.o.b. Ft. Worth.
New Orleans: Demand fair; trend weaker; supply ample; $117@118.
Chicago: Demand and supply fair; 60% protein $87.50@100.
Louisville: Demand fair; trend firm; supply normal; 60% $95@100.
St. Paul: Fair demand for fair supply; slightly higher prices; 60% digester $90@95.
Kansas City: Demand fairly good; trend steady; supply on the tight side, with light production being moved about as fast as it is produced; 60% digester $95@97.50, sacked.
St. Louis: Demand good; trend higher; supply fair; $105.
Omaha: $92.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand good; supply limited; 7¾¢ lb., f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.
New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.
Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand and supply fair; trend steady; $105@107.
Buffalo: Demand fair; trend steady; supply fair to poor; commercial grade $75, f.o.b. Buffalo.

LIVESTOCK

(Continued from page 1)

main rather small, total cattle slaughter next year will not increase greatly. This situation should put a firm support under cattle prices during the year, and the danger of the usual severe cyclical break in prices is still some distance in the future.

However, fed cattle will show less price strength than the other classes. Cattle feeding remains at high volume and animals are being fed to near record weights.

The greatest price strength will be in feeder and breeding stock, just as it has been in 1958. The chief reason lies in the abundance of low-cost feed. The bumper 1958 feed harvest has given another boost to demand for feeder stock, especially calves. Both cow and calf prices probably will stay high in relation to slaughter steer prices.

Movement of cattle into feedlots was slow to get under way in late summer this year, but then it really moved fast. The Jan. 1 inventory of cattle on feed is expected to top 1958 and may set a new high.

Prices of fed cattle may strengthen temporarily late in 1958, but a seasonal decline appears probable this winter. It will be touch-and-go as to whether feeders earn more than a normal or average profit in their feeding for late winter or spring sale. Prospects appear somewhat brighter for returns from sale later in the year.

Regarding the feeding situation, it is noted that the abundance of cheap feed is giving a tremendous boost to the feeding side of the beef cattle business, and it is lifting feeder cattle and calf prices to an unusually high relationship to prices for fed cattle. About 10¾ million cattle will have been fed and marketed during 1958—a new high.

HOGS: Prices of hogs, as has been expected, will be lower in 1959 because of increasing production. Farmers' intentions have pointed to at least a 14% larger 1958 fall pig crop. Producers in nine Corn Belt states have planned for 20% more sows to farrow in December-February, the first half of the spring season. The extent of price reduction in 1959 and the seasonal pattern of prices will depend to a great extent on how much farrowings are increased in March-May, the second half of the spring season. If 20% more sows farrow then, also, prices could drop to pretty low levels in the fall of 1959. If the March-May increase should be smaller, the price impact would be less.

Farrowings have been moved earlier in recent years, and if they should be still earlier in 1959, the seasonal distribution of the farrowings and marketings would be much improved compared with three or four years ago. Prices then would average substantially lower than in 1958, but severe declines during the fall would be unlikely.

If the total spring pig crop for the U.S. were to increase by as much as the 20% indicated for December-February in nine states, hog prices would drop sharply in the fall of 1959, possibly approaching the $10.60 low of 1955.

SHEEP AND LAMBS: Numbers of sheep and lambs on farms are being increased during 1958 by around 1½ to 2 million head. An uptrend will likely continue in 1959. Prices may average almost as high as in 1958. A downturn in prices of sheep and lambs may be expected to accompany a downturn in cattle prices in some future year.

SOYBEAN MEAL

(Continued from page 1)

agent, and the grain shovelers union, the shipment is expected to be the forerunner of many other large vessel shipments next year.

The pellets were shipped from the Honeymead Products Co. plant at Mankato, Minn., by train to Duluth where they were transferred to the lake vessel. Fifty cars were required. The shipment followed establishment of a new rail rate recently by the Chicago & North Western Railway.

The entire shipment will be discharged into the Ganson St. elevator of the G.L.F. which uses soybean meal at the rate of about 500 tons a day. This shipment is about a four-day supply.

Potential "Terrific"

"The potentialities for Buffalo in such vessel shipments are terrific," Richard W. Smith, manager of the G.L.F. mill division, here said. "Several hundred thousand tons of soybean meal move through Buffalo every year. It is quite possible that the volume of vessel movements of soybean oil meal into Buffalo next year may approach 100,000 tons—the equivalent of around 4 million bushels of grain.

"If present price and shipping-rate ratios prevail next year, G.L.F. alone may bring into Buffalo as much as 50,000 tons of the meal by boat."

Mr. Smith said G.L.F. "may save several dollars a ton" on the soybean meal shipments from the West.

Soybean meal traditionally has come to Buffalo by rail from Indiana and Illinois. Previously there have been several bottlenecks to shipments by boat. One was the high rail rate from major soybean-producing areas in interior Minnesota. That bottleneck was broken recently when Chicago & Northwestern Railway cut rates on trainload lots.

Another bottleneck was the hesitancy of the grain shovelers union to handle soybean meal because of the dustiness of the product. This was solved when Honeymead agreed to pellet the meal. The pelleting largely eliminates the dust and permits faster handling, Mr. Smith said. The union has agreed to try handling unpelletized meal next year. Mr. Smith said the meal itself is no dustier than oats.

G.L.F. is considering moving other feed ingredients on vessels that never moved in Great Lakes vessels before. The water shipments "will mean lower feed prices for G.L.F. farmer-members next year," Mr. Smith declared.

At least one other Buffalo feed concern is reported considering vessel shipments of pelleted soybean meal.

RECORD FEEDER SALE

DENVER — An estimated 6,000 head of carload feeder cattle went on the auction block in one day recently at Denver Union Stockyards to mark the largest such fall sale ever held in the yards. The sale followed judging the preceding day in which a load of Hereford steer calves from the Jack Orr Ranch, Granby, Colo., was named grand champion carload. Reserve championship went to Hereford calves owned by the Hinman Ranches at Kremmling, Colo.

IOWA

(Continued from page 1)

power of farmers can be improved only through their farmer-owned organizations.

Herman Aaberg, head of the livestock department of the American Farm Bureau Federation, told of the importance of foreign trade in providing additional outlets for livestock and livestock products.

E. Howard Hill, president of the Iowa Farm Bureau Federation, declared in his convention address, "The most ominous cloud on the horizon is the feed grain situation, with an all-time high supply, and we are adding to it each year."

He said the wheat situation makes the cloud still blacker with a 2½-year supply of wheat at the completion of the 1958 harvest. He reported that the Farm Bureau directors are recommending a vote to eliminate corn allotments. One objection to voting continuation of corn acreage allotments is that so few producers were eligible for supports under the program this year, and it probably would be worse next year with reduced allotments, he said.

He suggested other means of attacking the surplus problem: promoting increased demand for farm products at home; discovering new industrial uses for farm commodities, and increasing trade to expand the export market.

FEED MAN DIES

DAYTON, KY. — Matthew P. Almoslechner, owner of General Distributors, Covington, Ky., dealer in livestock and feed, died recently at St. Luke's Hospital. Surviving are his widow, one son and other relatives.

QUAKER OATS

(Continued from page 1)

providing easy access to customer's trucks for delivery of bulk feed," he said.

Mr. Riggs said there are no present plans to locate new feed mills on the West Coast, but that the company is continuing to study the western market for possible re-entry. Quaker Oats recently announced new feed mills at Asheville, N.C., and Jasper, Ala., as part of an expansion program based on its long-range study.

C. S. Gordon, executive vice president, said growth of cereal processing facilities at the Los Angeles plant is the result of rapidly increasing demand for the company's grocery products on the West Coast, particularly in the booming population area of southern California.

New cereal production facilities will include equipment for processing and packaging rolled oats, and for producing Masa Harina, a tortilla ready-mix.

The plant, coupled with warehousing facilities, will continue to provide central distribution service to the West Coast grocer trade. Flour milling operations, which Quaker Oats has carried on since 1945, will be continued as new product lines are added, according to a company announcement.

LAYERS

(Continued from page 8)

their low salvage value as meat, encourages the practice of keeping them for the longest practicable laying period, which has been lengthened by advances in breeding, said the USDA.

Although 1958 egg prices will average higher than the year before, indicating an improved profit position for egg producers, prices at the end of the year and early in 1959 will be lower than during the same months a year earlier. Economic conditions during the hatching season and the months before the hatching season are probably more influential than the annual average in affecting farmers' plans for raising replacement chicks. For this reason it is likely that the 1959 number will be smaller than the 436 million raised in 1958. The cut, however, is not likely to be down to the 1957 level, 397 million, the smallest on record.

Dr. Wise Burroughs Will Receive Award

AMES, IOWA—Dr. Wise E. Burroughs, Iowa State College livestock nutrition researcher, next week will be presented the John Scott award for his invention of estrogen usage in cattle and sheep feeds.

Dr. Burroughs and his staff announced in 1954 the successful feeding of stilbestrol to increase feed efficiency and decrease costs of gains in beef cattle. Since then stilbestrol feeding has been adopted by cattlemen throughout the U.S. and much of the rest of the world.

The presentation will be at a breakfast sponsored by Eli Lilly & Co., Indianapolis, for livestock scientists attending the annual meeting of the American Society of Animal Production in Chicago Nov. 29. Wheeler McMillen, vice president of Farm Journal, Inc., will make the presentation.

The award was founded by an obscure Scotch chemist named John Scott who died in Edinburgh in 1816. He bequeathed $4,000 to the city of Philadelphia, directing that the income be "laid out in premiums to be distributed among ingenious men and women who make useful inventions." By 1917 the fund had grown to $100,000. The standard award from the fund now is $1,000 and a copper medal.

OKLAHOMA

(Continued from page 6)

4.3% ash. In terms of high energy rations presenting interesting digestive problems, pigeon milk would appear to offer a fertile field for research . . .

"Enzymes offer a fertile field for study. Their value in certain types of poultry rations appears to be ensured. In the case of swine and cattle, results are conflicting, and some reservation is necessary before application is possible."

Pasture Vs. Concrete for Raising Hogs: Dr. J. C. Hillier of OSU cited Oklahoma and other work on this question. It appears, he said, that growing and finishing of hogs in confinement have several points to recommend the system under conditions prevailing in much of Oklahoma. These include: (1) equal or faster gains; (2) little or no increase in amount of feed per unit of gain; (3) greater possibilities for controlling environmental conditions; (4) opportunity for improved sanitation and parasite control; (5) elimination of both dust and mud; (6) greater opportunity for mechanization to cut labor costs; (7) adapted to year-around production; (8) closer control of all operations, weighing, sorting, feed records, etc.; (9) relatively small area required in relation to volume; (10) releases land for more profitable uses; (11) little or no greater investment in building and equipment; (12) no increase in total labor per unit of production.

Major problems of a confinement system include (1) removal of manure and water; (2) fly control.

Turkey Nutrition Research at OSU: Dr. Rollin H. Thayer outlined research with experimental rations indicating that market weight turkey hens can be produced in about 19 weeks and market weight toms in 24 weeks. In addition, it was shown that feed conversion was 2.12 for hens and 2.3 for toms, representing a 25% reduction in feed per pound of market turkey when compared with a practical control ration.

The first experimental ration, including a number of not commonly used ingredients, cost $34 cwt. To help find a combination of lower cost ingredients which would provide the nutritional equivalent of the experimental rations, an electronic computer was used. Machine calculated experimental rations have cost around $8 to $11.

Dr. Thayer said the research has shown that growing turkeys do not have the ability to balance protein and energy intake properly when mash and grain are fed free choice. Also, the studies have indicated that optimum results cannot be obtained unless males and females are grown separately, with different rations.

Present recommendations on the rate at which the protein level in turkey grower rations is reduced and the rate at which energy level is increased are not entirely accurate, the studies indicate, too. Much research needs to be done to determine the calorie and protein requirements for each week of the growing period. In addition, it is possible that feed manufacturers may need to formulate grower rations in which protein and energy levels are determined by nutrient requirements of the strain of turkeys being fed.

Calorie-protein ratio is a critical consideration since a slight deviation one way or the other at any given time during the growing period significantly reduced growth rate and increased amount of feed per pound of bird. Thus, said Dr. Thayer, not only will the growing of turkeys separated by sex be important, but strain requirements may have increasing importance.

Pole Shed Vs. Range Rearing of Market Turkeys: George W. Newell of the OSU poultry department reported on studies of confinement vs. range rearing and different amounts of floor space. He summarized results of the 1957 test for the 10-26 week period. The treatments were: 2 sq. ft. of floor space, 4 sq. ft., 6 sq. ft., 8 sq. ft. and range. Average male and female weights were 15.97, 17.26, 17.94, 17.61 and 17.27 lb., respectively. Feed efficiencies were 4.82, 4.49, 4.19, 4.43 and 4.02, respectively. Mortality was 11.7%, 7.3%, 4.2%, 6.2% and 18.5%, respectively. On live grading, per cent No. 2 reject was 4.2 and 3.1, 1.0 and 1.4, 0 and .5, 3.4 and .7, .2 and .3, respectively. Per cent below Grade A on dressed grading was 12.0, 7.7, 4.8, 3.4 and 12.6, respectively.

Dairy Management Program: C. L. Norton of OSU pointed out some of the important management practices in dairying, such as use of good roughage and concentrates necessary to balance the ration, use of production records to improve quality of cattle, artificial insemination in producing herd replacements and greater efficiency in operations. A production goal that should be the aim of every dairyman is 200,000 lb. of milk produced per man per year.

Expanding the Market for Feed: Tom Brinegar of Feed Age magazine, Chicago, pointed out that a feed manufacturer's sales department must be flexible and make readjustments as changes occur in sales problems, economic conditions, products, competition and personnel. He presented a check list of factors to consider in this regard. He also listed points to check in connection with such things as coordinating sales with other departments, selecting salesmen, training salesmen, building sales territories, analyzing customers, evaluating and controlling the sales program, introducing a new feed, and helping dealers.

Veterinarians and Feed Dealers Working Together: Lloyd S. Larson, Midwest Feed Manufacturers Assn., Kansas City, said that one of the most important things to do in improving feed man-veterinarian relationships is simply for the two to get to know each other better. The grievances of the two may be boiled down to a lack of understanding of one another's problems; lines of communications have been poor. Mr. Larson urged feed men to take steps to become acquainted with vets in their communities and then work together in solving farmers' problems.

Profit Pointers Program: Sewell Skelton, Oklahoma extension poultry marketing specialist, told of the Profit Pointers Program through which industry and the university have joined to issue leaflets on good poultry management practices.

There is need, he said, for continued industry effort to help complete the transition from current receipts to quality eggs in Oklahoma. He also suggested that a Profit Pointers Program may be needed for flock owners producing eggs for broiler chicks. This enterprise has had tremendous growth recently in the state.

National Egg Council Takes Shape: Don M. Turnbull of the American Poultry & Hatchery Federation, Kansas City, explained the need for a national commodity organization for eggs. The APHF has taken the initiative in the formation of a national egg council. "Not one single unifying force has been at work in the egg industry to provide an esprit de corps," Mr. Turnbull said. "Even our consumer program in PENB is sure to falter if we can't arouse more industry spirit. . . . Nobody is going to be concerned about eggs except the folks in the egg trade."

Objectives will be: (1) Fair prices reported accurately; (2) greater efficiency; (3) realistic quality standards meaningful to consumers; (4) quality in quantity; (5) stimulate research; (6) promote consumer relations, helping PENB; (7) forums for expression of views; (8) cooperation with government agencies and others; (9) orderly marketing; (10) information center; (11) esprit de corps; (12) direct association services.

Poultry Student Interest and Career Opportunities: Recent figures indicated that poultry science and industry need 2,000 poultry graduates a year, compared with the less than 200 graduated per year by land grant colleges. These figures and other information indicate that a really "selling" job has to be done, and that there is something to sell, it was pointed out by Dr. John W. West, head of the OSU poultry science department. Plans have been made in programs at OSU to meet the challenge of a new agri-business through new agriculture programs for students. Meanwhile, help is needed in scholarship and other programs.

Mechanization in Egg Handling: Many technological and mechanical innovations in egg handling off the farm can be expected in the next few years, said W. J. Stadelman, Purdue University. He quoted Wayne Miller of Seattle as listing these views on the egg business of the future: (1) Segregation of flocks according to age. (2) Quality determinations based on sampling and break-out tests instead of candling. (3) Visual removal of eggs which might be offensive to customers—dirts, checks, misshapen eggs, extremely rough eggs. (4) Removal of eggs with blood spots with electronic equipment. (5) Automatic weighing. (6) Cleaning at point of assembly rather than on the farm. (7) Automatic cartoning or casing. (8) Machine counting.

New Horizons: Lloyd S. Larson presented the half-hour Midwest Feed Manufacturers Assn. film "New Horizons," which tells the story of better foods from better feeds. The film features reports by several college nutritionists.

GROUP BUYS ELEVATOR

JONESBORO, ARK.—A group of Jonesboro business men has purchased the vacant River Brand Rice Mills, Inc., grain elevator for storage of 185,000 bu. of soybeans.

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MARKETS

(Continued from page 2)

ground cobs and shucks brought about by combining of corn in the fields. Feeder cattle operators continue to use unexpected tonnage, and apparently plan to continue their operation at as near capacity as possible so long as livestock prices hold present levels.

Most of the Southeastern trade expects a decline, if not a slump, after the first of the calendar year—perhaps a little sooner—in most feed ingredients.

South Central

Feed manufacturers report continuing good business this week and express satisfaction with the trend of their sales. Plants are being operated on a full-time basis, with varying amounts of added overtime. Although Saturdays are generally on a one-shift basis, one plant, at least, has been able to use the output from two shifts.

Most of the mills call attention to their growing cattle feed business. Until recently, cattle feeds were not much of a factor in this area and only a few firms made a real effort to develop the demand. This year, every mill seems to have put a big push on them with results far beyond expectations. One mill sales manager gives cattle feeds the credit for keeping his sales total ahead of the year ago period.

Hog feeds are moving at the same steady pace, the largest volume producer for the mills. The trend toward lighter sales of layer mashes and heavier sales of layer concentrates continues.

Central States

Feed business pulled back up to normality or better for November during the week ending Nov. 19, after a slight setback during the preceding period.

The temporary lull was eased when the price situation stabilized somewhat. Observers said the sharp run-up in prices of several ingredients for the last several weeks has let feed prices climb steeply, and some resistance has developed. This week, when it appeared some stability might be expected for a time, inventories were being rebuilt.

Dock business, especially, was good, reports indicate, and some mills have order backlogs of one or two days. Cattle and hog feeds are moving best, but dairy feeds are catching on. The threat of cold weather also is thought to be a factor in the sales pickup.

Ohio Valley

With area temperatures reaching an all-time high of 81.5° early this week, compared with the previous high of 75.7° for the same day in 1931, formula feed demands were relatively quiet, although holding up better than had been expected in view of the decidedly unseasonable weather.

With night-time temperatures remaining at a low of about 65°, there was a growth spurt in vegetation, but the feed value was said to be so far below that experienced during spring and early summer seasons as to be of little value for feeding purposes.

It was generally believed that the present weather situation is definitely temporary, as was indicated by the severe snow storms further west, and that sub-freezing temperatures were likely to develop at any time. When this happens, manufacturers anticipate an immediate sharp increase in orders, because of the hand-to-mouth buying that has prevailed through the fall to date.

Despite the continuing receipts this week of more animals at area stockyards, prices remained strong and the offerings moved out readily. This is considered an encouraging indication that prices will remain profitable through the weeks ahead, and serve to encourage increased purchases of formula feeds, especially if and when severe winter weather arrives.

Mountain States

Supplies of grazing feed for current needs are generally adequate throughout the area. Forage on winter ranges and pastures in Colorado is generally plentiful except in the western portion where some winter ranges have light growth of grass due to dry weather. Hay and other roughage feeds are in abundant supply in all sections of the area.

This past week's sales volume in formula feed has been up due to weather conditions. Formula feeds that have been getting the most demand in this area are cattle feed lot supplements. The increase is due to the larger numbers of cattle being fed in feed lots. Business is much increased over last week due to an increase in cattle moving to feed lots. Purchases by dealers are thought to be primarily for immediate sale.

Pacific Northwest

Feed ingredient quotations ruled stronger during last week's trading in the face of a seasonally dependable demand and less liberal offerings of some important items.

Several feed items posted moderate price advances during the trading period and the recent sharp downward trend for animal proteins appeared to be checked.

Colder weather was an important supporting influence with mixers reporting that supplemental feeding increased accordingly. Dairy and poultry feeders replenished inventories along with anticipating future needs. This more than maintained the volume movement of formula feeds.

Quotations for oilseed meals were particularly strong at Portland and Seattle where copra meal tags advanced close to $8 ton on offshore offerings, while soybean meal gained $1 to $2 ton with cottonseed meal fully $2 higher than the previous close.

Fish meal prices gained 5¢ a protein unit while corn prices pushed 50¢ ton higher. Other feeds held steady with the exception of blackstrap molasses which was priced $1 ton lower in front of a slow demand for the plentiful supply.

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Something wonderful happens to feeds supplemented with vitamin-rich MERRY-MIXER dehydrated alfalfa greenules. Feeders see it in increased appetite and growth on the feed lot. Feed manufacturers, in turn, see it reflected in repeat orders and new business. You, too, can spur sales by adding MERRY-MIXER greenules to your feed formulas. You'll find them dust-free and easier to mix than any other supplement you've ever used... and in good supply to meet your largest requirements the year round.

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BLENDERS INC.